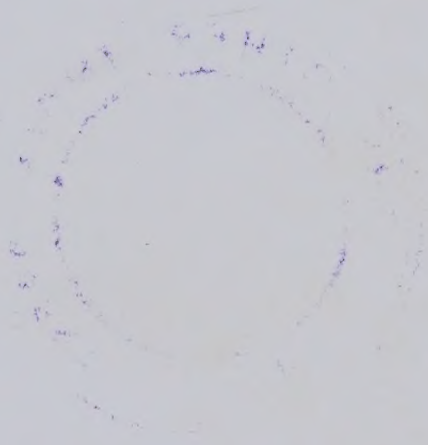
Library Edition/Other India Press Original
Not to be sold or taken away

Backyard Birds of South India

- Descriptions
- Folklore
- Migration
- Bird Watching

F.X.J. Pereira

Foreword by
Dr. Jane Goodall, DBE



Backyard Birds of South India

Backyard Birds of South India

F. X. J. Pereira

Foreword by Dr. Jane Goodall, DBE

Other India Press
Goa, India

Backyard Birds of South India
By F. X. J. Pereira

Copyright © (2006) F.X.J. Pereira

Published by:

Other India Press
G-8, St. Britto's Apartments,
Feira Alta, Mapusa 403 507 Goa, India
Tel: 91-832-2263306; Tel./Fax: 91-832-2263305
email: admin@otherindiabookstore.com
Website: www.otherindiabookstore.com

All proceeds from the sale of this book are committed to People for Animals, Chennai, India

Cover design: Nicky Thomas

ISBN No. 81-85569-71-1

Printed by S.J. Patwardhan at Mudra, 383, Narayan Peth, Pune 411 030, India.

Dedicated to
my wife, Pauline
and to my children, Nileema, Arun, Shiranee and Pradeep

And God said, 'Let the waters bring forth swarms of living creatures, and let birds fly above the earth across the dome of the sky.' So God created the great sea monsters and every living creature that moves, of every kind with which the waters swarm, and every winged bird of every kind. And God saw that it was good. God blessed them saying, 'Be fruitful and multiply and fill the waters in the seas, and let birds multiply on the earth...'

Genesis 1-20 2.4

'When uttering thy cry, O bird, proclaim good fortune. When sitting silently, cherish kind thoughts to us. When thou criest as thou art flying, let the sound be like a lute, so that blessed with excellent decedents, we may worthily praise thee...'

Rig Veda

Contents

Preface ix

Foreword xi

I. Some Backyard Birds

The Brahminy Kite *3* • The Black-Naped Oriole *5* • Crows *7* • The Crow Pheasant or Coucal *9* • The Drongo or King Crow *10* • The Green Barbet *12* • The Koel *13* • Kingfishers *14* • The Magpie Robin *17* • The Common Mynah *18* • Owls *20* • The Paradise Flycatcher *23* • Parrots *26* • The Purple Sunbird *29* • The Indian Pond Heron or Paddy Bird *31* • The Red-Whiskered Bulbul *32* • Woodpeckers *34*

II. Bird Matters

1. 'The wondrous creation of Nature' *39*
2. Interesting titbits about birds *47*
3. Bird folklore and legends *58*
4. How to watch birds and identify them *61*
5. Bird migration *67*
6. Binoculars for bird-watching *76*
7. Birds and the ecological balance of Nature *81*

Preface

This world of ours would be a very drab and dull place without birds. The melodious whistle of the Magpie Robin singing away in all its glory is a veritable treat to the ear. The swift screeching flight of the parakeet, always in a hurry, no time to waste, is a feast to the eye. The golden splendour of the oriole, or the long-tailed Paradise Flycatcher, looking as if it is stealing away a long ribbon, and the woodpecker, carrying a crown on its head are all gifts of nature, making this world of ours a little more beautiful, a little more pleasant to live in. They also have a positive and definite part to play in this great world of ours.

Despite the usefulness of these creatures, man has alas been indiscriminately killing them. Many of our beautiful birds have now become extinct or are on the verge of extinction. The greatest legacy we can pass on to the coming generations is this great and beautiful gift of nature, birds. And this can be done only if each one of us is made aware of and do our part in protecting and preserving these beautiful creatures of God.

Of late, there seems to be a birth of awareness among many, of trees, plants, animals, and birds, of their lives, their habits, their habitat and their environment. The desire to know more about them is growing and many are attempting to further study these subjects.

This book attempts to fulfill a part of these needs and describes, in short and concise form, some of the common birds

of south India, seen often in our backyards, gardens, or where there is thick foliage or vegetation. Tips on bird-watching, folklore on birds, and some interesting titbits on birds and other connected and related information are also given in this book.

No pretence is made that what is described here about these birds, their habitat, and their habits is all-inclusive or totally exhaustive. Only a broad picture of some of our south Indian birds, their salient facts and features are given for easy identification and study. So too, in describing the subjects associated with birds, no deep and incisive study is made, but only a purview given.

I hope that by going through these pages the readers' interest in birds is aroused and an attempt is made to protect and preserve these creatures. If this is achieved, the aim of this book would be fulfilled.

I am thankful to Dr. Jane Goodall, DBE, for writing the foreword for the book. I am also thankful to Mr. Allan Singer for giving me the necessary permission to reproduce images of many of the birds seen in this book and to Ms. Pauline Thomas of Hamlyn, UK for permission to reproduce some material from their publications.

F. X. J. Pereira
'Gitanjali'
1510 Mundakal West
Kollam 691 001 Kerala, India

the Jane Goodall Institute

Foreword

Bird-watching is an increasingly popular occupation in many industrialized countries. This is not surprising. Firstly, birds, in a way, are symbols of freedom, able to fly up from the ground, up towards the sky. We all, at some point, want to fly, to feel the wind rushing past, to soar effortlessly up and away. Secondly, birds help many people to reconnect with the natural world for, except in the most polluted places where almost all of nature has been destroyed, birds share the brightness of their lives with the human inhabitants of towns and cities. Often they bring not only colour but also the glory of their songs.

In New York, an increasing number of the well-to-do rise before dawn, at least once a week, to go out into Central Park, binoculars, note books and field guides at the ready. And the other day I had a letter from a prisoner who said that his life had been transformed when he was put on duty in the kitchen. For while he was emptying the waste into the bins outside, he was able to watch the birds who gathered in search of scraps. This had given him a whole new interest, and he was able to reconnect, even though in such a small way, with the natural world from which, for many weary months, he had been locked away.

In England I grew up with a great love of animals. I would go on 'nature walks' with my pencil and notebook, watch birds, and try to find their nests. We learned early never to go too near, never to touch the eggs lest the parent desert her nest. So imagine

my delight when a pair of robins – the robin redbreast that is a symbol of Christmas in Europe – actually made their nest in my bedroom. I had been sick in bed for several weeks during the winter (with one of those childhood diseases, measles I think). It was cold, with a lot of snow, and I had left the window open with breadcrumbs spread on the window ledge, and on a table just inside the room. Many kinds of birds were attracted, but the most frequent visitors were the robins, and the days were brightened by the presence of my little feathered friends. The male sometimes sang, sitting and looking out from the window ledge, proclaiming his territory. Subsequently, in the spring, the pair began building a nest in the corner of the top shelf of my bookcase! They never minded when I walked past, and I was able to watch, close up, as the fledglings took their first flights from my window ledge!

In Tanzania the same thing happened with a pair of East African Wagtails, friendly black and white birds who are always attracted to human habitations. Often, as you take the boat along the shore of Lake Tanganyika, a pair will fly from the land, and spend ten minutes or so just sitting on the prow, often singing, before flying back to their territory. Sometimes five or six pairs, one after the other, come to ride the boat during the 12 mile journey. And one pair nested in the bookcase in the sitting room of our house on the lake shore. Unlike my friendly robins, these parents were nervous if we got too close – which was massively inconvenient since we had to avoid half the room for several weeks until they had raised their brood and abandoned the nest!

My introduction to one of India's most common birds, the Myna, was painful. I was being interviewed by a professor of animal behaviour in Cambridge University, who had a great interest in learning. He had acquired a Myna – I don't know if it was a Common or a Hill Myna – and was teaching it to speak as part of his experimental study of how birds learn. This bird had the freedom of the room and, being young and inquisitive, naturally wanted to investigate the new arrival. Which would

have been fine, except that he was obsessed with my hands, flying down, perching on my wrist, and pecking my fingers, again and again. Several times he drew blood. I was convinced that the professor was testing me, trying to find out if I was really an animal person suitable to do a PhD in his department. So instead of scolding him and shaking him off, I endured his painful investigation and concentrated on answering the questions I was being asked! After I had been accepted I commented on the incident – the professor had not even noticed!

I was delighted when I was asked to write the foreword to *Backyard Birds of South India*. This book, with its careful descriptions, is a 'must' for visitors to India. It will delight all those Indians who love nature, and will I am sure help many more people to discover the fascination of watching birds. I hope it finds its way into many homes, and especially into school libraries, as it will surely stimulate interest and respect for nature in young minds. And, as we humans move ever deeper into the natural world, it is desperately important that we learn to live in harmony with nature as much as possible. We must welcome birds into our gardens and onto our roof tops, not only for our own delight, but also to help conservation efforts for the eventual pleasure of generations to come.

Dr. Jane Goodall, DBE
Founder – the Jane Goodall Institute &
UN Messenger of Peace
www.janegoodall.org

I

SOME BACKYARD BIRDS

The Brahminy Kite

Reproduced with permission

The Brahminy Kite is found all over India, the Far East, up to the Solomon Islands and Australia. It is about 21 inches in size, chestnut brown in colour, except for the head, neck, breast and the lower abdomen, which are white. However, the shafts of these white feathers are black. It is distinguished from the Pariah Kite in that the Pariah Kite is totally brown in colour, slightly bigger and has a forked tail. The Brahminy Kite has a rounded tail. The bill is short, crooked and curved. The sexes are alike.

Gliding, circling, diving and then soaring high in the skies, in circles, the Brahminy Kite in flight is one of the most beautiful sights to watch. Known to be an excellent flier, it flies for hours together, circling in the skies, looking down intently on the earth for its prey. While in flight, the kite keeps its wings high above its

body. The legs are noted to dangle at times while in flight. Its cry is loud and clear and can be heard while it is perched on trees or even in flight. This bird is usually found singly.

Known to possess very powerful and keen eyesight, it lives on small insects, birds, frogs, lizards, rats, etc., and spots them on the ground while flying high. It is found often also near lake sides, ponds, and marshes, looking for fish, frogs, etc., and in ports and harbours, for trash and refuse thrown away from ships. In fact, it is known to do quite a bit of scavenging too.

The nest of the Brahminy Kite is built on high tree tops, with sticks and twigs, and it lays about two eggs, which are greyish white, blotched with reddish-brown. Both the male and female do all the incubation duties.

The Black-Naped Oriole

The word 'Oriole' is derived from a Latin word, 'Aurolus' which means 'yellow' or 'golden'. Orioles are essentially tropical or subtropical birds, and the origin of orioles is central Africa, south Asia and Indonesia. From here they seem to have spread to Europe and Asia in two branches. Orioles are thus divided into two groups – the 'Old World Orioles' and the 'New World Orioles'. The New World group is found in Europe and west Asia, and winters in Africa. The Old World group is found in Africa, south Asia, the East Indies to New Guinea and eastern Australia. The chief difference in these two varieties is that the Old World Orioles are called True Orioles and have ten primaries, whereas the New World Orioles have only nine primaries. The Old World ones thus belong to the same category as the jays and the crows.

The True Oriole which we find here is called the Black-naped Oriole. It is about 8 to 12 inches in size and has 12 tail feathers and 10 primaries and short fine bristles on the nostrils. These

Reproduced with permission

bristles cover the nostrils. The male is bright yellow or golden in colour, except on the head, neck and part of the wings, which are black. The tail, though golden or yellow like the body, is black on the top feathers. The eyes are red and the bill is pink. The female, however, is slightly duller black on the head. The young oriole has its black head streaked with yellow. The oriole is a strong and fast flier; the flight pattern resembles that of the woodpecker, in that it has an undulating flight. Its songs are clear and loud, like that of a flute.

They are found in pairs or single and never in groups. Their diet consists of insects and worms, as well as berries, nuts, and fruits. When perching on a tree, an oriole will constantly twist and turn, and is never still for long, hopping about from branch to branch or tree to tree looking for food.

Its nest is intricate and cup-shaped and made of grass, and is built between branches on high tree tops, or made to hang between branches. It is usually near or the same tree that the drongo has its nest. This is for the protection the drongo gives the oriole by driving away nest robbers and other predators. An oriole lays 2 to 5 eggs, which are white with heavy specks of brown and black. The female of the True Oriole sits to hatch its eggs, but in the case of the New World Oriole, both seem to share this duty. The incubation period is 14 to 15 days.

Crows

The ubiquitous crow is a condemned bird, wanted by none, and despised by many, though the services it provides man are many. If perhaps this bird was not found in abundance, as it is now, and had it the colour of the orioles, or the kingfishers, the story would have been different. Yet, if the crow is watched closely, not many birds have the proportionate build of this beautiful black bird.

Crows are found in all countries, except Australia, New Zealand, certain Oceanic countries, and southern south Africa. The house crow is approximately 18 inches in length, with the neck alone grey. The rest of the body is black in colour, all over from bill to legs and tail, and its call, 'craw, craw', makes it easy to spot and distinguish from other birds. The bill is unnotched, medium-sized and pointed. The wings are pointed when folded.

Reproduced with permission

It has a straight flight as distinguished from the undulated flight of the bulbul or the oriole. It is classified as the Oscine variety and is the largest of the Passerine birds. It belongs to the group of 10-primaried birds and therefore is akin to jays and orioles.

The crow is fond of the human environment and less afraid of people than other birds. It is always able to adjust to new surroundings. It generally flies low and is vigilant in its hunt for food. It consumes anything that is edible and is therefore omnivorous. It also has no compunction in consuming putrefied carcasses of other animals, birds, insects and other unwanted trash and therefore is considered a scavenger. Because of this, it is a very useful bird to man in keeping the environment clean. Crows are gregarious by nature, so when danger threatens, or if an attack on small insects or birds has to be initiated in order to grab their food, or an attack on them as food, they call each other, and join together for such forays. Bold, noisy, aggressive and active, crows attack other larger birds in pairs or groups. The crow is both a blessing and a nuisance to farmers, since it eats insects and pests but also devours seedlings.

It is known to nest mostly on high trees and branches, and its nest consists of twigs, dried sticks, etc. The clutch varies from three to five eggs at a time and the incubation period is about 19 days. Eggs are greenish in colour, with heavy brown spots. The female alone sits and the male feeds it during this time. The crow is rated as a great nest robber. It raids other birds' nests for their eggs, and the young ones. The crow is considered one of the most intelligent of all birds and can be made to learn to count up to four, and it also associates sounds with foods.

The Crow Pheasant – Coucal

The Crow Pheasant is found all over India. It is a little larger than a crow. It is completely black in colour, except for the wings, which are chestnut brown. The bill is black, slightly curved down, and the eyes are red. The legs are short, and one characteristic of this bird is that its hind toes have claws which are longer than the toes. The tail is also black, pointed in the middle, long and rounded. Both male and female look alike.

Its movements on the ground are slow and deliberate. It is found mostly among bushes and where there is heavy undergrowth. It feeds on insects, lizards, mice, worms, etc. It robs eggs and nestlings from other birds' nests. The flight of this bird is short and it glides down to its hunting ground. It moves either singly or with its mate. This bird is not shy of people and is found near human habitation. It is also found in open forests.

The calls of these birds are easy to distinguish. They are short and distinct and have a thick resonance. At times there is a duet between two birds of the opposite sex calling to each other. They also crackle and grunt at times. Though this bird belongs to the sub family of cuckoos, it does not have the parasitic tendency of the cuckoo.

The nest of this bird is built in dense thickets, but quite low to the ground. It is bulky and dome-shaped, lined with green leaves and grass. The grass and green leaves are replaced as soon as they get dry and shrivelled up. The eggs are white and have a chalky gloss. Both the male and female incubate the eggs and do all the other chores during this period. It takes about 14 days to hatch the eggs.

The Drongo – King Crow

Drongos are found in Africa, Asia, China, Australia and the Solomon Islands. They live in open spaces as well as in deep forests, from sea level upto 10,000 feet. The Black Drongo in India is also seen in Taiwan, southeast Asia and Japan.

The drongo is a small bird, a little smaller than a crow, and is about 12 inches in length. It is completely black, except for its eyes, which alone are red. The wings when folded cross at the tips. It is noted for its long black tail, the extreme ends of which form into a fork. The tail has 10 feathers. The legs are black and short. The bill is short, stout, arched and notched and slightly hooked, with bristle-like hairs sticking out above the nostrils. Both the male and female look alike. Their cries are somewhat harsh, and they can imitate the cries of other birds as well.

Living in open spaces, they move about singly. Their food consists mainly of small insects and nectar from flowers. Perched on wires and open branches, they are ever ready to pounce on insects in flight or worms on the ground. Drongos move about with grazing cattle and ploughs, catching insects, worms, etc., disturbed by them. They are thus a great help to farmers, as they kill many insects which farmers consider pests.

These are brave birds, attacking other birds larger than themselves, with their swift acrobatic flights. Drongos take a peculiar fascination in attacking larger birds, especially crows. They are able to out-fly them, and their quick manoeuvrability while darting, looping and diving is helped in no small measure by their V-shaped tails.

Orioles, doves and other more docile birds live under the drongo's protection, often nesting in the same tree as the drongo, or else, very close to it. Drongos are called king crows because

they attack and chase away crows and other such nests robbers, though these predators are larger than them.

Drongos' nests are fragile, round and flat, built on high branches. Their eggs are pure white, speckled with brown or grey. The females take on the major part of sitting on these eggs, but the male also helps with this chore. Any predators, nest robbers or other enemies approaching anywhere near the vicinity of their nests are driven away with much fury and vengeance.

Reproduced with permission

The Green Barbet

Green Barbets are found all over India, in the Far East and also in Africa. This bird's entire head and neck is light grey with short dark grey streaks going down from the head up to the neck. The wings, the upper body, and the tail, are leaf green and the lower portion of the body is pale green. The tail is short, square and stumpy, and not in proportion to the body, and hence it gives the bird a stocky appearance. The bill is light brown, small and heavy with bristles, or feathers, protruding over the bill. In fact, the name of the bird is derived from this bearded appearance it has. Both male and the female look alike.

The barbet lives on berries, worms, termites and fruits. Insects caught in flight are also eaten. The flight of this bird is short, with a few strokes of the wings, then a glide, then a few strokes, etc. Its cry is easily distinguishable, being short and having a metallic resonance. Because of this metallic sound in its cries, one variety of barbet is also called Coppersmith. It moves its tail or head whenever it cries out. Sometimes one can hear a pair calling out to each other for a long time. It is heard during summertime and on very hot days more than on other days.

The Green Barbet is seen most of the time on trees, branches, etc., and to see it on the ground is a rarity. The nest of this bird is made in holes of trees and branches and even with discarded nests of other birds. The nest is made about 25 feet from the ground. The same nest is used year after year, made deeper as the years go by. The entrance of the nest is usually sufficiently camouflaged with leaves. It is known to keep its nest clean of droppings of nestlings, and other dirt. The discarded nests of the barbet are also used by other birds. The barbet lays about three to four eggs at a time, which are white in colour. The incubation period is about 15 days and both the male and the female share their domestic duties.

The Koel

The Koel is one bird where sexual dimorphism is noticeable. The male and female differ radically in external appearance. The male is jet black and the female is dirt brown with white or grey spots. The bills in both male and the female are greenish yellow, and the eyes in both are fiery red. The size of the bird is the same in both sexes and they are a little larger than a crow. The tail is long and rounded at the end. In fact, the male in flight could easily be mistaken for a crow. This bird is found all over India, and it moves about singly or in pairs. Gardens where there are a lot of trees and foliage are its habitat.

One easy-to-distinguish characteristic of the Koel is its cry. By its cry alone one can easily spot and identify the bird. The cry starts on a low pitch but slowly picks up in intensity and momentum. As the intervals between cries decrease, the cries get louder and louder until they suddenly cease. Then the cycle starts all over again and the whole process is repeated. The Koel is one of the earliest birds to make known the break of dawn with its calls. It is during the summer days and the hot season that the Koel is most often heard. The female however does not have this cry. The female only makes short low-pitched noises.

The flight of the Koel is short and swift. It moves about most of the time on trees, hopping about from branch to branch in a slow, deliberate and cautious manner, looking for fruits, berries, etc. It also feeds on worms and insects.

The Koel is a parasitic bird. It lays its eggs in crows' nests, and lays them at the same time as the crow does. The eggs too look like the crow's eggs, but are slightly smaller and pale greenish with specks of brown.

Kingfishers (white-throated and common)

Reproduced with permission

Kingfishers are mostly found in southern Asia and parts of south-east Asia. These birds have a pointed or flattened bill, depending on the species, short neck, large head and short tail. The overall build of these birds makes them look short and stumpy. Kingfishers are almost all brightly coloured, many in greens and blues, often with white patches. The sexes do not differ, except that perhaps the females are a little duller in colour. Because of these characteristics, kingfishers are easy to spot and distinguish from other birds.

The White-throated Kingfisher and the common kingfisher are two species found here in south India. The White-throated Kingfisher is a small bird, about 5 inches in length, with azure wings and a darker streak of the same colour on the shoulders, a white throat, and a bright red bill. The underside and the rest of the body are brown and the head is dark or brick brown. Its tail is short and blue. The wings, though deep blue, have a white patch which is noticeable only while in flight.

The common kingfisher is also a small bird, and it differs from the White-throated Kingfisher in that the former has white only on the throat and the neck. Both the wings and the top of the head are greenish-blue in colour and the bill dark grey. The underparts are orange-brown.

The fishing methods of the common kingfisher are very interesting to watch. No sooner is a shoal of fish sighted than it hovers over the water, with its wings fluttering at great speed, stationery at one spot, with its bill pointed down and looking as if it is standing on its tail, ready to dive down at the opportune moment. When the fish or shoal come sufficiently near the surface, it dives swiftly like a bullet with its pointed bill striking the water first, and in an instant comes up with a fish in its bill. Sometimes it may be seen perched up on a tree near waterways, diving in an instant as the fish is sighted. Apart from fish, it also eats lizards, tadpoles, insects and worms, and may be seen darting and catching a hopping or flying insect. The prey so caught is battered and beaten on the tree or ground and then consumed.

Kingfishers are swift fliers. They are often seen flying low over water, just a few feet from the surface. The flight often consists of a few strokes, and a short glide with half closed wings, then again a few strokes of the wings, and a glide again with the half closed wings. Their cries are shrill and loud and often made while flying. They are not gregarious and are never found in flocks. They are seen either alone or in pairs. They are active and brisk birds. Though they wait very patiently for a very long time for

their prey, common kingfishers have the habit at times of turning and twisting their necks up and on both sides in a comical way.

Nests are built on sand banks. The kingfisher digs a hole with its bill and shovels the sand away with its feet. Both male and female take part in building the nest. The tunnel which is made horizontally into the sand bank goes deep to about 10 feet and it is at the end of the tunnel that the nest is made. The nest is made of bare sand no other materials are used. It lays five to eight eggs, which are white in colour. Both sexes incubate the eggs. The incubation period is about 18 to 24 days.

The Magpie Robin

The Magpie Robin is a small bird, black and white in colour. The abdomen, the outer tail, and part of the wings are white and the rest of the bird is black. The female is brownish grey whereas the male is black.

A peculiarity easily noticeable and distinguishable in this bird is that it often elevates its tail from the horizontal to the vertical position. This process goes on most of the time, since the tail always tends to fall back to the horizontal position. Further, whenever the bird sings, it is again accompanied by this movement of the tail.

This bird is often found near human habitation, and it moves about in pairs or singly. Once it finds a mate, it is for life. The male is one of the sweetest singers among birds. Its melodious whistling is heard only during its mating season, which is during spring. During this time, the male conspicuously sits on open wires, branches, both during early dawn and evenings, and sings loud and clear, for a good length of time. During the non-mating season, it is seen very little, since it moves about very quietly and unobtrusively.

It guards its territory and domain very ferociously from intruding males, and shows signs of anger and resentment by puffing up its feathers, and making threatening poses and movements of attack.

The food of this bird is insects, worms and nectar from flowers. Its flight pattern is short, swift and undulating. It is known to imitate well the cries of other birds.

The nests are built high above the ground at about 20 ft. or so in holes of trees, old buildings, etc. It lays about three to five eggs of a pale blue-green colour, with reddish-brown patches. The female alone sits to incubate the eggs, and the male helps only in other domestic chores.

The Common Myna

The common Myna is a medium-sized bird, about 10 inches in size, and is found extensively in all Indian cities and towns. It is fond of human habitation and environment. This brownish-black bird has white wing patches. These white wing patches are noticeable only in flight. The tail, which is short and rounded at the end, also bears white patches on the top. The bill and the legs are yellow, and there are yellow patches around each eye. Both male and female look alike. This bird has a straight quick flight. It feeds on the ground, mostly on worms, small insects, fruits, etc., and is omnivorous. It also moves about with cattle, catching and eating insects and worms disturbed by the movement of cattle. Very rarely are mynas found singly, since they always move about in pairs and groups.

Reproduced with permission

Its calls are sharp and loud, and it has a repertoire of them. While calling out certain peculiar notes, it puffs up its feathers, and bobs its head up and down. At times, groups join together and go through this ritual many times, all in unison.

Nests are built in tree holes with small twigs, paper, and all kinds of rubbish. The eggs are glossy blue, and about four to five eggs are laid at a time. Both the male and the female share the domestic duties.

Mynas are noted as the best birds to be trained to talk. This is more so with the hill Myna than the common Myna which is found in cities and towns. The hill Mynas are larger in size, and as the name denotes, are found only in the hill forests.

Owls

Reproduced with permission

Owls are found in every continent and country, except in the Antarctic region and some oceanic islands. Owls vary in size and colour. The about 216 species of owls are divided by some ornithologists into two groups, that is, the Barn Owl and the True Owls. The external differences between these are that the Barn Owl has long legs with feathers covering them up to the feet, while the True Owl does not have this feature. The legs of the Barn Owl are longer than the tail itself.

The Barn Owl (earlier also called the Screech Owl) is commonly found here. These are medium-sized birds and nocturnal like all owls. They sleep during the day and are not blind in daylight, as is commonly believed. They are fond of human habitation, and in fact are found wherever there are human settlements. They are reddish-brown in colour, with black and white speckles, and their underparts are white.

Since there are many kinds of owls, their cries also vary to a large extent – from the calls of the Barn Owl, which are tolerable to hear, to the eerie hoots and wails of the others. The male bird's cries are different from the female's cries, and sometimes the male and the female call each other in a duet-like fashion. Though the male and female differ in their cries, in appearance they are the same.

The most striking feature of the owl is its eyes. The eyes of the owl are placed right in front of the head, unlike most, if not all other birds, where the eyes are placed on either side of the head. The movements of the eyes though are not as much as in other birds.

Another deceptive feature of the owl is its neck. Looking at the owl it would appear that it does not have a neck, and the head looks as if it sits squarely on the body of the bird. But it is not so. It does have a long neck but, being covered with feathers, it looks short, and nonexistent. Since its eyes are placed right in front of the head, and not on either side of the head, as in other birds, the owl is impaired from having a wide angle of vision

which other birds have. To compensate for this seeming handicap, the owl is capable of turning its neck around at a much wider angle than other birds.

Some species of owls have one ear-opening larger than the other. The ears of the owl are very sensitive, and it hunts more with its ears than with its eyes, though the latter sense is also good. The sharpness of the ear is increased, because of its flat face which acts like an antenna funnelling the sounds to the ears.

Another interesting feature of this bird is its food habits. The owl's food consists of small birds, mice, rats and such small living creatures. What it catches it swallows whole. After thus consuming its prey, it sits quietly on its perch while its digestive juices begin to act; it brings out the unwanted undigested portions by regurgitating them in small pellets. Because of its powerful digestive juices, only the unwanted feathers, bones, etc., are thrown out.

Owls are fond of sitting on the same branch or spot every time, once they have chosen a place. Their hunting is done in and around and not far from such a spot. The anger and resentment of this bird is shown by the clacking of its bill. Because it eats small rodents like rats, mice, etc., it is a great friendly help to the farmer.

Owls' nests are made in holes of trees, ledges of banks of lakes and rivers, and even abandoned crows' nests. Their clutch consists of one to nine eggs, and the eggs are pure white in colour. Both the male and the female take turns in sitting on the eggs to incubate them, and both also feed and look after the young ones.

The Paradise Flycatcher

There are two varieties of flycatchers. One is the Old World Flycatchers and the other the New World Tyrant Flycatchers. These Old World Flycatchers which we find here belong to the Monarchine subfamily of flycatchers. They come in many colours and are not found in the western hemisphere.

These Old World Flycatchers are found in Africa, Madagascar, India, Malaysia, Philippines and in the north, in China and Japan. It is these northern Paradise Flycatchers from China and Japan that migrate and not the others.

The adult male Paradise Flycatcher is white in colour, with black crested head and a very long white tail, which makes it easy to distinguish from other birds. The sexes are different in the Paradise Flycatchers. The adult females are light brown and without the long tail. The young males are brown or chestnut in colour, and the lower parts of the body are white, the long tail being absent. It is with age that the tail grows, and the bird itself changes its colour and becomes white. So also does the plumage on the head change colour. These birds could easily be confused with the bulbuls, if one does not take note of the tail, since they resemble the bulbuls a lot in all other respects.

A peculiarity of the long tail is that this bird does not acquire it until the third moult, and it is the central pair of feathers that are elongated, not the other feathers of the tail. This long tail is about 18 to 20 inches long, when fully grown, and is about three times the length of its own body.

These birds are about 7 inches in size with a flat and broad bill which is bluish-black in colour. The legs are short and slate-coloured. Their tarsals are scaled and not smooth in front. These birds do not have a sweet and melodious voice and therefore their cries tend to be harsh.

Reproduced with permission

Paradise Flycatchers are hard working, active and restless birds, and are never seen to sit quietly on the perch for long. Their movements, despite their long tails, are quick while preying on insects in flight. Insects are their food, and they hunt for them even through foliage. Usually they are solitary birds, but when not breeding may join other groups in their wandering hunts. Because of their conspicuous tails, they seem to be in constant danger of being caught or killed.

Their nests are made on branches, holes of trees and clefts of rocks. Their nests are cup-shaped and made of dried leaves, bound together with cobwebs. They lay about three to five eggs at a time, which are cream coloured and spotted with brown. The incubation period is 12 to 14 days, and the fledging period is 11 to 15 days. Both male and female take turns in sitting to incubate the eggs. It is rather odd to see the male sitting in its nest with its tail hanging out of the nest. These birds are not averse to people or human habitation.

Parrots

The family of parrots is large, and it consists of many varieties. It includes cockatoos, lories, macaws, lovebirds, budgerigars, etc. There is a wide variation in size also in the parrot family – from the very small Pygmy found in Papua, measuring only a few inches, to the largest, the Long-tailed Macaw, measuring up to 40 inches, found in the deep Amazon jungles. The colour variation is also great. Deep and bright greens, blues, oranges, yellows, reds, whites and blacks are mixed and interspersed so vividly, presenting a most fascinating feast to the eye.

The parrot is found all over the southern Hemisphere, except in the southern tip of Africa and some Pacific Islands. In the Northern Hemisphere, it is found in Mexico, USA and southeast Asia. In the Indian subcontinent, we have several species of parakeets. The only 'parrots' are the tiny Vernal and Sri Lanka Hanging Parrots.

The bird has a short, sturdy and hooked bill, the upper bill being deeply curved down, hooked and pointed. This is one of the few birds which have two of its toes in front at the end of the feet, whereas most other birds have three toes in front and one at the back. The eyes are placed on a bare patch of skin where there are no feathers. The nostrils are high on the base of the upper bill, and in some species, it is covered with light feathers. The parrot also has powder downs interspaced in its feathers, all over the body. The preen gland is defunct through disuse, though it possesses one. The size of the tail varies from a long pointed one to a short square type, depending on the species.

The parakeets most commonly found in forests, cities and towns of south India are the Rose-ringed Parakeet, the Alexandrine Parakeet and the Plum-headed Parakeet. They are green in colour and medium to large in size (Alexandrine), with

Reproduced with permission

long pointed tails. The bills are red in the first two, yellow in the third. Some have rings round the collar of the neck. They move in groups or pairs. The parakeet is a fast and sleek flier, and it cries are shrill, sharp and loud and can often can be heard at a distance. Its food consists of fruits, berries, grains etc. The parakeet is considered an enemy of farmers, because it destroys crops, and while eating, wastes more than it consumes.

Parrots are one of the most popular cage birds, kept as domestic pets because of their so-called ability to imitate words, phrases, and sentences, taught to them by repetition by people. Among all the parrots, the African Grey Parrot, found in the rain forests of the Congo area, is most prized because of its best speaking ability. All parrots are known to use their legs very deftly and efficiently. They use them to eat, holding the food down, and also to climb and hold on to branches of trees. They have one of the largest life spans among birds, the larger ones living up to fifty years.

The nest of this bird is made in holes of trees, rock crevices, and burrows in the ground. The clutch is about three to five eggs, and they are pure glossy white. Both sexes take turns in incubating the eggs, and this takes about 17 to 20 days. The young are fed by both male and female, and this is done by regurgitation.

The Purple Sunbird

The Purple Sunbird is a small bird, about four inches in size. The male alone has a beautiful deep purple sheen from the head down the back, which shines brightly in the sunlight. The female does not have this deep purple sheen and is only dull grey or brown on the top and lighter brown and dull yellow below. This bird is a swift flier.

Purple Sunbirds are found from India to southeast Asia. They do not migrate and tend to stay in the same place. Their nests hang only a few feet off the ground and are pear shaped. They are made of plant fibres and kept together by cobwebs. The entrance to the nest is at the top, and has a portico-type covering. These nests are easy to spot since they are never hidden and are

Reproduced with permission

built in rather open spots. The attachment of the sexes is strong and practically the same pair stays together throughout the year. They are not gregarious birds. They are known to strongly defend their nests from intruders and enemies.

Apart from the novel nests these birds build, it is their bills and tongues that are most interesting. The bill is curved down and proportionately slightly long for the size of the bird. The end of the bill is serrated. The outer two-thirds of the tongue is double-tubed and opens to a trough which in turn leads to the oesophagus. The top of the tongue is divided in two, and in some species, three forks.

This bird feeds on small insects and the nectar of flowers. The nectar that cannot be reached through the opening of the flower, if it is too deep within the flower, is secured by cutting and piercing through the bottom of the flower. If it is unable to perch itself on a stem or branch close to the flower to get its nectar, it hovers over the flower, fluttering its wings very rapidly and keeping itself stationary just above the flower, then dips its bill into the flower and gets the nectar.

These birds are noted for their constant movement, and are never seen still or sitting quietly. Their wings often keep twisting, ever-ready to take off or move about. Being small and slender and very light in weight, they are able to perch even on a small flimsy stem of flowers and thin branches or shrubs and plants, while hovering about for their food. They usually move only in pairs, and are rarely seen alone or single.

It lays about two eggs at a time, and the incubation period is 14 days. The female alone sits on the eggs to hatch them. The fledging period is 17 days. The eggs are grey or greenish white, with shades of grey or brown.

The Indian Pond Heron Or Paddy Bird

The Indian Pond Heron, also known as the Paddy Bird, belongs to the Old World group of birds and is found in Africa and Asia. It is a medium-sized bird, a little bigger than a crow.

It is mud brown in colour, except on its head and neck, which are streaked with black or dark brown lines. The underside and the lower breast are fully white, including the underpart of the tail, so, as soon as it takes off, it appears completely white. It has a long pointed bill, yellowish-black in colour. Its legs are spindle-thin and yellowish-green. When this bird stands, its wings cover the whole body like a cloak. It has a very short tail, which at times looks nonexistent. The upper portion or the top of the tail is also mud brown in colour. The overall appearance of this bird while it walks is that it is stocky. However, when it cranes its neck forward to look, it has a much sleeker and thinner appearance. It walks very slowly and cautiously, with a crouch and with its bill pointed down. Both the male and the female look alike.

Small fish, frogs, insects, worms, etc., that are found in and around waterways are its food.

Its cries are harsh to the ear, and are made mostly in flight. These birds are not averse to people, and are found at every water site, like lakes, rivers, ponds and even small temporary pools of water, even in the middle of towns and cities.

Their nests are built on large trees with twigs and sticks, and they lay about three to five eggs at a time. The eggs are pale greenish-blue. Both do the incubation and the other domestic chores.

The Red-Whiskered Bulbul

Reproduced with permission

Bulbuls are found in southern Asia and Africa, in areas ranging from 10,000 ft. in the Himalayas to sea level. There are many species of Asiatic bulbuls. Bulbuls belong to the Oscine variety, that is, they are song birds.

One of the bulbuls found in southern India is the Red-whiskered Bulbul. It is a small friendly bird, about 8 inches in

size. The head of the bird is black and it has two patches of red below each eye, white cheeks and a red patch under the tail. It also has a pointed crest of black feathers. The body is dull brown. The neck, breast, and lower parts of the body are white. A band of easily distinguishable feathers in black separates the neck and the lower portion of the body. This black band of feathers is known as the collarate. The tail is medium in length, light black with a patch of white at the end. The bill is slightly curved, slender, and hooked. Some species have their bill notched.

Red-whiskered Bulbuls are essentially forest birds, though they have adapted themselves well to towns and cities. They are gregarious and go about in flocks, but during the mating season they are found in pairs. The sexes are of the same colour, but the male tends to be slightly bigger than the female. They are noisy and active birds and their whistle is pleasant to the ear.

These birds do not insist on their territorial rights. Their nests are concealed and cup-shaped, and made of fibres, grass, sticks, etc. The nests are built on branches of trees or small plants or shrubs. The clutch consists of two or three eggs. The eggs are pinkish grey with red, black and purplish spots. The incubation is done by the female alone and she is fed by the male at these times.

Bulbuls feed on insects, berries, and fruits. The young ones are first fed on insects and then on berries and fruits. Predators like crows, owls, snakes, cats and other such nest-robbers are mobbed and driven away.

The Red-whiskered Bulbul being friendly, active, attractive, small and with a pleasant whistle is often preferred as a cage bird.

Woodpeckers

Woodpeckers are found all over the world, except in Antarctica, islands of Oceania and Madagascar. These are essentially forest birds, but now found in towns and cities as well.

Several species of woodpeckers are found in India. One of the most widespread is Black-rumped Flameback (old name: Lesser Golden-backed Woodpecker). It is about 12 inches in size with a red crest. The nape, rump and tail are black and the cheeks are white with a white-streaked black throat and black eye stripes. The back of the bird is crimson or golden-yellow. The underparts are white with black scallops. The wings are black and golden yellow with white spots on the shoulders. The bill is grey in colour. The female is similar in size and colour to the male, except that its fore crown is black.

Woodpeckers, as the term implies, are diggers and chisellers of trees trunks, logs and pieces of wood, while looking for worms, insects, borers, etc., inside the wood. This digging and chiselling is done with its pointed bill. After digging – or if a dug hole is available – it has a peculiar habit of twisting and turning its head, as if looking with each eye more closely into the hole. Then, with its very long extensile tongue, which has barbs pointing backwards at the end of it, and with the gluey saliva, the tongue sweeps the entire hole and spears all insects, worms, etc., that are found in the hole. The bones which escape the spearing of the tongue get stuck to it, because of the sticky saliva. Therefore, no insects or worms in a hole or crevice escape its tongue.

Woodpeckers work up a tree from its base, clinging with their short, strong legs. To help them in climbing and clinging to the tree, they have curved pointed claws. The tail too acts as a support in climbing and clinging, since it is stiff and straight. They go about their work fast, taking up tree after tree, and are on the

Reproduced with permission

move all the time. Though most of the time they work up a tree, from the base upwards, at times they also come down from the top of the tree, working downwards. Even in their downward movements, the head is always pointing up. Whether working up or down a tree, their movements are always very jerky. The necks of the woodpeckers are thick and strong muscled. They have a heavy skull to withstand the constant pounding it takes to dig into wood.

These birds are not strong fliers, but are swift in their flight. The flight itself is undulating. They make a few strong strokes which take them up, then they swoop down with closed wings and again a few strokes by the wings, and then the closed wing swoop. This is the flight pattern.

Most species of woodpeckers are lone hunters, and are rarely seen in groups, though pairs are often found together. Their knocking on trees makes their presence known. When they sight an intruder they hide behind the tree.

The nests of these birds are dug deep in the tree or sides of tank bunds. No other materials are used to make up the nests, except the holes which they have. The eggs are roundish and glossy white, and both birds take turns in sitting on the eggs. They take about 14 days to incubate the eggs.

II

BIRD MATTERS

1

'The wondrous creation of Nature'

Who does not envy the ease with which a bird takes off into the air? Its soaring to great heights, gliding with such nonchalance, diving with precision, and taking off with such rapidity, are sights one marvels at and enjoys. When they are up in the air, they seem to say, 'I am the monarch of all I survey,' and one does not doubt it in the least. Man perhaps being envious of these beautiful creatures, watched them closely and studied their movements and their body structure; and today his success in conquering air and space is in no small measure due to the lessons he has learned from them.

The bird is unique among all the creatures that live on this earth. The domain of the fish is water. The reptiles, though land creatures, are able to take to water when necessity arises. And so do animals, though land dwellers, take to water, if forced to. The amphibian, as the name implies, is a creature which lives both on land and water. But none of these, not even man, is able to take to the air, that is, travel through air by their very nature or their make-up or their inherent capacities. On the other hand, there are birds, which can live on water, on land and in the air. Hence, birds can truly be said to be unique creatures.

The bird has vertebrae like mammals, animals and reptiles. It is evolved from reptiles. The earliest bird known to man is said to have had claws on its wings. Just as reptiles have scales, birds' legs or tarsi are scaled, which leads one, among other things, to conclude that the ancestors of birds really were reptiles.

Structurally, the bird is built for flight. Its bones are hollow and have internal struts instead of marrow. This makes the skeleton very light. Most of the joints are fused together, which make them strong. The breastbone has a strong keel in the centre and has the wing muscles, which are the largest and most powerful muscles, attached to it and forms an important part of the body.

The birds that run and walk lose the flying muscles and keel of the breastbone through disuse. This makes the breastbone look like a flat raft and not like a keeled boat of flying birds. Therefore, these are called 'ratite' which is derived from the Latin word 'ratis', meaning raft. Birds with keeled breastbones are called 'carinate', which again is derived from a Latin word, 'carina', meaning keel.

To be a bird it must have feathers, and therefore its feathers are a very important part of its body. The feathers are grown on a special portion of the skin known as the feather tracts. In most of the birds this covers the entire body. The feathers give it beauty and shape and protection from heat and cold, help waterbirds to float on water, and make it possible to fly and give balance in flight. Without the feathers, the bird is completely helpless. It has to hunt for its food, move about from place to place and flee from its enemies. For all these, it has to take to flight, and without the feathers being kept trim, in shape and in good condition, its ability to fly will be impaired or arrested.

The feathers of the birds are of two kinds. One kind are known as the 'down' and the other the 'contours'. The down feathers are very soft, fluffy, small, and close to the skin of the bird. They keep the body temperature constant, acting as an insulator against outside temperature and also preserving the body heat of the

bird. The contour feathers consist of the top feathers, including those of the wings and tail. These are medium to long in size, compared to the down.

The initial feathers of the bird, which it acquires as it grows soon after its birth, do not last its lifetime. In fact, the feathers in most birds drop off and new ones grow in its place. This happens at least once every year with most birds; and twice a year with some others. The dropping of feathers usually happens just after breeding, and is called 'moulting'. Since feathers give balance in flight, and flight is essential for its survival, moulting happens in a systematic way, without impairing its flight. The wing feathers drop the same number of feathers from the same spot at the same time. Similarly, the tail feathers drop in pairs at a time from each side.

Migrant birds, if they are to survive long flights, have necessarily to have their feathers in good condition to support their long flights. So, most migrants moult just prior to the migration. But if, perchance, due to the change of weather conditions, etc., they have to migrate earlier, some birds moult *en route* and some moult in the summer grounds. There are some even found to moult during the breeding season itself, when they are fed by their mates. Moulting makes a big demand on the bird, and therefore, during this time, it consumes more than the usual intake of food.

The bird is synonymous with flight, though there are flightless birds, which are, however, few in number of species. The essential limbs for flight, that is, limbs that aid the bird to take to the air, are its wings and its tail. Without wings, a bird is never able to fly. But without its tail, it may be able to take to the air, but then it becomes inhibited or restrained in its movements to a great extent.

The tails of birds are very varied in size and shape. They are long, short, round, pointed, forked at the end, and so on. Essentially, the tail functions as a rudder, then as a brake, and

also helps the bird keep its balance in flight just prior to landing. The effectiveness and the function of the tail are easily noticeable. If the kite is watched closely in flight, we can see the twist of the tail during turning and banking, the swift dives to land and take off from intricate corners and nooks, when it picks up its quarry and flies away. Similarly, a crow spreads its tail like a fan just prior to perching or landing, to break the landing and also balance itself.

Wings, too, like the tail, come in different shapes and sizes, varying according to the bird's needs. A bird with long wings is usually a fast, high-altitude flier, who stays airborne a long time. Short and rounded wings are noted to be possessed by birds that do not fly much and mostly do short distance low flying. Gliding, soaring and hovering are the main methods of flight of birds, though all birds do not adopt any or all of these. Gliding is moving through the air with outstretched wings, without flapping them. Soaring is similar to gliding, in that there is no flapping of the wings, but the bird not only moves forward but upwards as well. This becomes possible because, while soaring, the bird uses the updraft of the air and the wind currents, which enables it to climb. It floats along with the air currents and banks and turns with the help of the wing tips and tail. Land-soaring birds go higher than sea-soaring ones, because the updraft of the air over land goes higher. Further, the land-soarers have broader and more rounded wing tips with a wider wing spread, which function like slots and allow them to turn and bank quickly, unlike the sea-soarers. Just as the air flaps on the wing tips of the aeroplane are adjusted to gain height, the bird can tilt its wing tips to gain height. The ratio of the wing area to the weight of the bird is called the 'wing load'. The soarer has a comparatively less ratio of wing to its weight than a short distance or low flier. That is, in a soarer, each square metre of wing will lift less weight than a quick or short and low flier, where each square metre of the wing will lift a heavier load. Then there is hovering. Here the bird stays stationary in midair, when the wings are flapped in rapid succession.

Bills of birds also vary in size and shape, as do the wings and tails of birds. The size and shape of the bill is a telltale sign of the bird's eating habits. A very thick, short and stumpy bill denotes that it is a nut and seed eater. Long, pointed and thin bills are found in birds who probe into mud and slush. Thin, delicate and curved bills are found in birds who suck nectar and honey from flowers. The top bill being short, pointed, crooked and overlapping the bottom bill is mainly possessed by birds who are meat eaters, and this kind of bill cuts and tears its prey. Pointed, long and thick bills are found in birds who probe into holes on thick trees and heavy stumps of wood.

Legs of birds are meant not only to stand on or perch on trees and branches, but at times to act as another limb to help it to eat. Waterbirds such as swimmers, divers and mud-waders have webbed toes. Then again, the kind of claws, their length and thickness, would suggest whether they are perchers or climbers of trees. Runners are noted for their long spindle-like legs. Those that walk through thick vegetation, where there is heavy undergrowth, have very long and elongated toes with equally long nails.

The leg tendon runs from the groin and over the knee to the toes. The legs as they bend to perch or sit pull the tendons, thus closing the toe tight on to the branch when the bird perches. Thus, it can sleep and rest perching on the tree even when there is a strong breeze or wind and will not be blown off. When it raises itself, the tendons become loose and unlock the toes, and the grip is released.

Birds are usually noted for their cleanliness. Apart from the usual bath which they take in water puddles, etc., they keep themselves clean by other methods also. One such procedure followed is dust bathing. This is done by the bird sitting on the ground and throwing mud on its feathers and wings and flapping them on the dust and sand. This is done mainly to get rid of the bugs and lice on the bird.

Anting is another method by which the bird gets rid of ticks, etc. This is done by the bird sitting amidst a swarm of ants and allowing the ants to climb on it and squirt it with the formic acid which the ants emit. The ticks and insects fall off or are killed by this formic acid. Similarly, some are seen to take a mouthful or billful of ants and squirt themselves with the ants to achieve the same desired result of getting rid of the insects on them.

To help the bird to groom itself after cleansing, nature has also provided a helping hand. There is a gland situated on the body of the bird called the preen gland. This is just above the root of the tail. After the bird has generally cleaned the feathers of the wings and the body of lice and insects, it digs with its bill all over the body hunting again for lice and insects. After this, follows the procedure of preening. The preen gland secretes a thick waxy liquid. With its bill it rubs this waxy liquid all over its body. Apart from giving the feathers a water repellent coating, it also gives the bird another salutary advantage. Sunlight falls on this waxy liquid and by its interaction this liquid is converted to vitamin A which is a much needed vitamin for the bird. The sunlight melts this waxy secretion, and thus, it percolates through the feather to the skin of the bird. This preen gland is most developed in aquatic birds, since the need for it is more than for land birds. This preen gland secretion is carotenoid pigment of red, yellow and green, with which some birds go to the extent of even colouring their feathers as a way of grooming.

Apart from the self help of the bird to clean and groom itself, birds help each other as well. Here the birds sit close together and will peck the feathers of the other looking for and removing ticks, lice, etc. This kind of help is called allopreening.

The bird is a warm-blooded creature. Its body temperature is kept constant, irrespective of whether it is in a hot place, or a very cold region. The metabolic rate of the bird is high compared to that of other creatures. Birds, being very active most of the time, necessarily increase their heat with constant movements.

Since they do not possess sweat glands, the excessive heat of the body is thrown out through the lungs, and the air sacs they possess. Air sacs in a bird play an important part. These are connected to the lungs by very thin tubes. These sacs are located in different parts of the body. They help it to breathe, lighten the weight of the bird, help waterbirds to float, and also to produce the long notes and whistles which are possible because of these air sacs.

The amphibians and some reptiles have three chambers in their hearts, whereas birds, like mammals, have four chambers. This helps in sending concentrated oxygen-filled blood from the lungs to the body. The heartbeat is also faster, and therefore the blood is also pumped faster. The body temperature being about 105 ^{0}F – 110 ^{0}F burns up food faster. All these are therefore attuned to give it plenty of energy which it needs for its flight and constant movements.

For proper classification and identification of birds, and to avoid confusing names for the same bird, which may vary from country to country and even regions of the same country where languages differ, it has become necessary to have a uniform language and pattern in naming birds. So, ornithologists and scientists have determined that all birds be named in one common language and that language be Latin. Further, it has also been uniformly accepted that the first name of the bird should denote the genus and the second one the species. At times, a third Latin word is also added to denote a further classification as to its territory of origin.

The senses of the bird are touch, smell, taste, hearing and sight. The least developed are the senses of smell and taste. The sense of hearing is well developed and so is the sense of sight. This is because it has to watch and hear its enemy, flee from it, sight and hear its prey, attack and get it, watch and listen to its young ones, and then in the mating season, adopt the colourful rituals like cooing, whistling, grunting, followed by postures and dances all of which are in no small measure assisted by these

senses of hearing and sight. Also, migratory birds depend on their keen sense of sight to guide them to their destination, and along with their cries, to keep them together at night as a flock, while they migrate from one place to another.

How do birds communicate with each other? Or do they communicate at all? There is no doubt that birds do communicate with each other, though such communication may not be as elaborate as among human beings. One sign of such communication is the varying tones and intensity of their cries. Depending on the circumstances and the situations they are in, their cries vary from low-pitched tones, when they call out to each other in ordinary circumstances, to the high-pitched panicky quick cries, when in danger. Then again it may be noticed, the tone varies when it shows anger and resentment while claiming a territory or while fighting those of its own kind who are its enemies. Calling out to each other for help, or alerting and cautioning others of the dangers of other predators may produce different calls altogether. Such cries to alert others or the enemy presence evokes responses not only from its own kind or species, but also from all others in the vicinity. The call of the parent bird to its young is also different. The mating season brings out the best songs and whistles, which surpass all other cries in sweetness, melody and intensity.

Other methods of communication employed are stances, poses, etc. Sometimes puffing up the feathers, bowing, dancing and jumping, all these and more denote to others different moods and intentions. Cocking its head, shaking and so on – each of these seem to have a positive meaning which it communicates either to its enemy, friend, mate, etc. These in turn bring certain responses from others.

Birds are thus a wonderful creation of nature. Their beauty is unsurpassed, their usefulness second to no other creatures. Though their life span is short, they enrich this universe immensely, both physically and aesthetically. Man is indeed richer by their very existence.

2

Interesting titbits about birds

1. Birds are warm-blooded, like mammals. Their body temperature averages about 10 ^{0}F more than the mammals, including man.

2. Birds are said to have evolved from reptiles during the Mesozoic era. The earliest birds with teeth on their bills, claws on their wings, and vertebrae extending to the tail, were the size of a crow.

3. The kiwi is the only bird which has its nostrils opening at the end of its bill.

4. The ostrich is the only bird which has two toes, instead of four.

5. The Indian Griffon (vulture) found in northern India can withdraw its entire head completely into the white ruff which is around its neck.

6. Paittacosis is a viral disease, originally thought to have been transmitted by parrots only. Hence, it was called 'Parrot Fever'. However, now it is called 'Ornithosis' and is said to spread to people from almost all birds, including domestic fowl and pigeons. Antibiotics and antitoxins have now been developed to counter this disease.

7. An owl regurgitates the remains of the digested food in small pellets while sitting quietly after its meals on its perch.

8. The female of the hornbill, while it is incubating the eggs is entombed or sealed in its nest, with only a small opening through which the male feeds her.

9. Pigeons and doves are the same and the names are interchangeable. A pigeon can be called a dove and a dove can be called a pigeon.

10. Ducks are the only birds that shed their primaries all at one time. All other birds shed their feathers one or a few at a time and are thus never incapacitated. The ducks which lose all their primaries at one time are then helpless creatures.

11. The ostrich, the largest bird, lays the smallest eggs in relation to its size. The egg is only 1% of the female's weight and weighs up to 3 lbs and is 6 to 8 inches in size.

12. Swans, geese and ducks are all waterfowl. Swans are the largest; next in size are the geese and then come the ducks. The goose's neck is comparatively shorter than the swan's is, in relation to the size of its body.

13. Birds that generally stay in trees are called arboreal.

14. Birds with no keel on the breast bone are called ratites.

15. Perching birds are called passerines. About three-fifths of the known living order of birds belong to this category. The outstanding characteristic is three unwebbed toes in front and one at the back of the feet.

16. The internationally accepted common term or sign used by all ornithologists to depict the male of the species in a diagram or picture, is the sign which shows an arrow at the top of a circle and outside it and touching the circle. This sign is known as the 'Arrow of the Mars'.

17. Similarly, the sign for the female of the species is a circle with a cross pointing down on the outside of the circle and touching the circle. This sign is called the 'Mirror of Venus'.

18. Certain types of feathers found in some birds are called 'powder downs'. These feathers are never shed and continue to grow. The end of these feathers fray continuously into a powder, and this powder is used for dressing other feathers. Herons are most noted for these feathers which are seen to grow in pairs near the rump, breast and flanks.

19. The true songbirds, that is the birds that sing, are called 'oscine' that is belonging to the Oscine variety. These belong to a large group of 'passerine' birds. Oscine birds have well-developed vocal organs.

20. The excrement of birds like cormorants is rich in nitrogen and exploited on a commercial scale in Peru, and shipped all over the world. Japan and Africa also exploit this commercially. These countries erect special platforms for their roosting and perching, to get their guano. The Japanese are said to spread straw under the nesting colonies of these birds to collect the guano to enrich their paddy fields, where it is used as fertilizer.

21. The Spinetailed Swift (now known as the Brown-backed Needletail) found from India to southeast Asia, is one of the fastest fliers among birds. It is estimated to fly at 150 to 200 mph. The naked eye is unable to see the fast-moving wing strokes. One peculiarity of this species is that some swifts are able to move one wing faster than the other. This is to make up for the ineffective short tail which acts as a proper rudder in other birds.

22. All birds living in cold zones migrate to warmer climates to avoid the rigours of winter. The exception to this is the Colorado Whippoorwill. This bird hibernates the entire winter period in some rock crevices in the cold zone itself. During this time, its body temperature drops from 102 ^{0}F to 64 ^{0}F and its metabolic rate is also said to drop. This hibernation was said to have been first discovered by the American Indians. However, this idea was pooh-poohed by some until it was again discovered by others.

23. The Cuban Bee Hummingbird is the smallest bird yet to be known. It weighs less than eight grams and is only ¼ inches in size from tip of tail to tip of bill.

24. Pigeons and sandgrouse are the only birds known to drink water by sucking it in. They dip their bill in the water and drink through their bill in that position, unlike other birds who tilt their heads at intervals while drinking to take their fill.

25. The cuckoo lays its eggs in the nests of other birds. It carefully selects the nest of the bird which lays the same colour eggs as it does. It even times its laying to synchronise with the laying of the foster parents' eggs. Once its eggs are thus laid, it flies away with the foster parents' egg, and this stolen egg is either dropped on the way or consumed. Once the cuckoo's egg is hatched, this cuckoo fledgling gets deep into the nest and lifts the unhatched eggs or other birds' fledglings or nudges them out of the nest, thus destroying them. This peculiar habit of the young cuckoo lasts only for two or three days after its birth.

26. The honeyguide, like the cuckoo, lays its eggs in other birds' nests, and allows these eggs to be hatched by the foster parent. It is also known to destroy the eggs of the rightful owner of the nest by pushing them off the nests. Further, the hatched young honeyguides are born with a hooklike growth at the end of the bill. This is used to peck and kill other rightful owners' nestlings, if any. This sharp hooklike growth falls off after a few days of early growth.

27. Honeyguides are fond of bees and wasps, which form its main food. They are therefore found wherever there are beehives and wasps nests. They are known to have a thick skin to withstand the bite of these bees and wasps. Some honeyguides are known to have a body odour which acts as a repellent to insects and bees and wasps. It is also said that they eat the wax of the beehive rather than the larvae and eggs of the hive.

28. African Honeyguides, as the name implies, lead and guide animals like the ratel or Honey badger to the beehive. They

attract the attention of the ratel or man with their loud cries and, by flying short distances from tree to tree, lead them to the hive. Once the hive is pointed out, they wait patiently for the ratel or man, whoever has been led to the hive, to take the honey. Then they go for the bees' larvae and wax.

29. Flycatchers build their nests near that of wasps for their own protection.

30. The Lyre-bird and Albert Lyre-birds are some of the most beautiful birds of Australia. Lyre-birds, and more especially Albert Lyre-birds, are excellent mimics among birds. They not only mimic practically all the cries of other birds but also sounds of animals and even car horns and other man-made sounds.

31. Bitterns are noted for eating eels. After a meal, they rub their head into the powder downs of their breast. After a while, when it dries, the powder cakes up all the slime and mud of the head and face. Then, the bittern combs it head with the serrated nail of its middle toe to clean itself completely of mud and slush. After such cleaning, it dips into its preen gland and thus does the waterproofing.

32. Most migratory birds take in a lot of fat before they start on their journey. The fat is stored under the skin. The Ruby-throated Hummingbird stores up to 50% of its body weight before it takes off in its nonstop migration. The bird is known to do 500 miles at a stretch on a nonstop flight.

33. The Hummingbird gets its name because of the distinct hum which is quite audible and which it produces while in flight. The wing-beat of the Broad-tailed Hummingbird is about 75 beats per second on straight flights. However, when the male Broad-tailed Hummingbird dives and loops around and near his mate, while courting, the wing beat increases upto 200 beats per second.

34. The Grebe is a waterbird which looks like a duck, except that its thin short bill is pointed and it has a long thin neck. It has the peculiar habit of eating its own feathers. Even the very young

are known to eat the parents' feathers. This phenomenon is yet to be explained.

35. The Andean Condor and the Californian Condor are the largest living birds which fly. Their wing span is 10 feet, which is equal to that of the albatross. However, they are larger in body weight and in the areas of their wing than the albatross.

36. The lining of the crop of the pigeon thickens during the incubation period. This happens to both the male and the female. When it is time for the young to be fed, the pigeon regurgitates a thick curd-like substance which is the slough from the lining of the crop. The young at times dip their bill into the throat of the elders for this substance. This substance is called 'pigeon's milk'.

37. Divers like the Red Throats and the White Throats are among the few birds whose bones are not hollow, but solid. These birds can go underwater at the least bit of suspicion of danger by expelling the air from their body and from under their feathers. This increases the specific gravity, and thus exceeding the specific gravity of the water, they go underwater with ease quickly and unnoticed and without even disturbing the surface of the water.

38. The Slender-billed Shearwater's (now known as the Short-tailed Shearwater) incubation period is about 54 days. The incubation is done by both the male and female in turn. The first two weeks, the male sits, and the rest of the time, the female sits. During these incubation chores, neither the male, nor the female take any food or water.

39. The two largest penguins are the King and the Emperor. These do not build nests but incubate their eggs standing with the egg resting on the feet closely huddled to their belly. The male of the Emperor Penguin alone incubates the egg without any help from the female. This takes up to 65 days. During this entire period, it holds the only egg – only one egg is laid at a time – on its legs. During this period, it loses up to one-third of its weight. No sooner is the young one hatched, than it exudes from its crop a substance which becomes the food for the young

one for the first few days. The female, which had been without food from seven to eight weeks at a stretch preceding the egg-laying, now having regained her lost weight, returns to take charge of the young one. It is then that the male leaves, to break its fast and regain its lost weight.

40. The albatross is a large bird, with a wing span of up to 11 ½ feet from tip to tip. This bird uses the nuances of the wind to its best advantage. They are never seen flapping their wings when they are in the air, as other birds do. They just go on and on, gliding, taking the up-drafts created by the waves of the sea. They follow mighty ocean liners, which do upto 15 to 20 knots, by just gliding along. And in point of fact, an albatross is pretty helpless without a wind.

41. The bird that is used by man to earn a living is the cormorant. The fishermen of Japan and China use these birds, which catch fish by diving and chasing the fish underwater. Several birds are taken by each fisherman in his boat, and each is tethered to the boat. The boats float along downstream, and since this fishing is done only during dusk, a metal basket is attached to the front of the boat with wood faggots burning in them. The bird, with the base of its throat tied with a thong, is allowed to dive in. When it comes up with a throat full of fish, it is pulled into the boat. The bird is prevented from swallowing the fish by the thong, and once aboard the boat, the fish are taken from the gullet of the bird, and it is made to go for further catches. At the end of the fishing, the thong round the neck is removed and a throatful is given to the bird as its share of the catches. After its throat is filled with fish, the bird has the thong tied back above the packed fishes in the throat, lest it brings out its share by force of habit.

42. Pelicans have a cooperative way of fishing in the offshore shallows. The group forms into an arc and flies shoreward, low, with their wings and feet hitting the water. As the arc closes in, the fish are driven towards the shore. Once the fish are in the

shallows, the pelicans dip their large pouched bills into the water, sieve it, and then consume the fish.

43. The Black-throat ducks and Red-throat ducks are varieties of ducks. Japanese fishermen while fishing in the island waters of Japan use the Red-throat and Black-throat divers to drive shoals of fish into their nets. These fishermen take great pains to see that these divers are not hurt or frightened. These divers are seen to move alongside the fishing boats, driving the shoals of fish towards the waiting nets.

44. Pigeons are noted for finding their way home, flying even over strange and unknown lands. They are said to have been used as early as the time of Noah. The Romans got news of Caesar's fighting in Gaul through the messages brought by pigeons. The news of Napoleon's defeat at Waterloo, sent through pigeons, reached England four days earlier than the couriers sent by horse and ship. And in World War I, the Lost Battalion of Wittlesy's in Argonne got help through the news carried by the famous pigeon 'Cher Ami'.

45. Megapode is a Greek work meaning 'large foot'. Birds belonging to this group are known for their large feet, legs, and claws, and hence this name. A few of a group of 12 Australian and Malaysian Megapodes hatch their eggs without the heat of their own bodies. In fact, these are the only gallinaceous variety to do so. The Australian Brush Turkey, the Scrubfowl and the Malleefowl of the Megapode family belong to this category. The largest of these, the Brush Turkey, is found in northern Australia, and the other two in southern Australia.

46. The Scrubfowl lays only one egg at a time. In preparation for laying it gathers with one foot all the vegetation on the ground and makes a conical mound up to five to seven feet high and with a diameter of 20 feet or, at times, more. To build such a mound, a lot of litter, trash and vegetation is gathered, sometimes extending up to 100 yards around, Usually, a single pair of male and female do this, but sometimes it is communal building by

seven or eight pairs together. After a few days, when the mound begins to rot and the temperature rises up to 95 ^{0}F to 96 ^{0}F, the female lays one egg into the hole, dug several feet deep on top of the mound, and covers it up. (The rotting vegetation in the mound generates heat and hatches the egg.) Again, the next day or the day after, it digs another hole to lay another egg, laying up to five to eight eggs, but always only one at a time. Every day, it checks on the previous days' eggs by digging them up to make sure they are being incubated with the correct amount of heat, and also to air the eggs. During the incubation period, these birds are always close to the mound. It takes eight to nine weeks for the young ones to hatch. Once they are hatched, they are on their own and are able to fly unaided immediately.

47. The Mallesfowl digs a hole as large as ten feet in diameter and up to three feet deep in the ground and fills its with dry leaves and sand. The mound so made rises up to two to three feet above the ground and has a diameter of six to ten feet. It lays the eggs in a hole in the mound in spring, the rains then rot the leaves, and the heat generated from the rotting leaves incubates the eggs. During this time, both the male and the female keep a close watch on the mound, checking the eggs daily by digging the hole to see if the correct temperature is maintained. The male is more assiduous in its job than the female, and checks the temperature in the hole with its tongue. A summer advances, with an increase in the sun's heat, it removes the sand gradually to maintain the correct temperature in the 'incubator'.

48. The Brush Turkey, also called the Talegallus, builds the largest of such mounds, extending up to 50 feet in diameter and as high as eight to ten feet.

49. Cranes always fly with the head extended, and while migrating fly in a 'V' formation. While they fly as high as 10,000 feet, their wings have a rhythmic stroke, a slow downward beat with a quick upward beat, gliding only when they are about to land.

50. Swifts live entirely in the air, catching insects in flight. They never perch on trees, because of their short legs and weak feet, which cannot support them. Some swifts roost hanging upside down on steep cliffs by their sharp toe nails and on chimneys supported by their short tails.

51. The Grey Swifters (now known as Edible-nest Swiftlets) of the Andamans and parts of Southeast Asia make their nests entirely of their own saliva. It takes them nearly 40 days to build a nest. During the nest-building season, the salivary glands enlarge and give out more saliva. These nests are cup-shaped, and considered delicacies in Southeast Asia. Illegal trade in the nests flourishes. The first nests of this hardened fluid fetch the highest price because of their purity. After the first nests are taken away by traders, the second and third ones built contain many impurities, and hence fetch lower price. Cleaned of impurities and hardened, these are erroneously considered to be protein rich. The Chinese sell these as 'dragon teeth'.

52. The Golden Plover defends its nest in a most intriguing and interesting way. It distracts the attention of the attacker by feigning an injured wing and drags itself on the ground with its stretched 'broken wing'. As the marauder chasing it comes close, it takes flight.

53. The Huia was the only bird where the male and the female of the species had different kinds of bills. The male of Huia had a chisel-like bill and the female a curved bill. The difference in bills helped them look for different sources of food. This bird is extinct now. It was originally found in New Zealand.

54. The Hoatzin is a pheasant-like bird, about eight feet in length, brownish in colour, and with shafts of feathers as a crest on its head. This is a peculiar bird, in that it has many characteristics that are not found in other birds. The chicks, on hatching, have two well-developed claws on each wing tip, resembling the earliest evolutionary bird. These claws last only about two to three weeks, after which they drop off. The chicks

on hatching are immediately able to move about with these claws and legs. Born good swimmers, they swim and crawl back to their nests when they fall into the rivers over which the nests are mostly built. The Hoatzin is sometimes called the 'Stink Bird' because of the strong odour that it gives out. Another peculiarity of this bird is that it has two large crops. The arum plant, which is its main food, has rubbery leaves, and one of these crops helps to create juices needed to digest these leaves. The other crop acts as a storage bin of the bird. This bird is found only in the north eastern part of South America.

3

Bird folklore and legends

According to an old Roman custom, the future could be foretold by watching birds. The bird's flight is noted and studied, its calls are interpreted, even its entrails examined, and the future told.

There is a belief among sailors of the high seas, that no sooner is an Albatross seen, than a good gust of wind can be expected, or perhaps even a storm not be ruled out altogether. Further, the sailors believe that since these birds are often seen following ships, they are the souls of the sailors who died at sea.

There is an old Western custom of heralding the birth of a newborn baby by saying that 'the stork has arrived.' There is no basis for associating a stork with a baby or its birth, and therefore this seems to be shrouded in mystery.

A more interesting story in the West pertains to the kingfisher. It is said that the kingfisher was a dull grey bird until Noah and his Ark came along. After the great deluge, at about evening time Noah is said to have released the kingfisher from the Ark. It flew straight into the setting sun in the direction of the west. The sun which is rusty red at that time of the day, scorched the bird rusty red on its back. It got its greenish blue on its breast and undercover from the evening sea, which is of this colour.

The kingfisher is placed high and revered in Greek mythology. The Greeks called the kingfisher 'Halkyon'. This word is derived from two Greek words 'hals', which means the 'sea', and 'kyen', meaning 'conceiving'. This is because the Greeks believed that the nest of the kingfisher was in the sea itself. The gods are said to have favoured this bird during its nesting season, and therefore calmed the seas at this time, which is the fortnight before the winter sets in, when the sea is supposed to be calm. It is from this word that the Latin word 'halcyon' is derived, and the English phrase 'halcyon days', meaning calm and peaceful times.

Even the scientific name 'Alcedimidae' for the kingfisher has a basis or origin in Greek mythology. Alcyone the Greek, who was one of the Pleiades, married Ceyx, son of Hesperus. When Ceyx died in a shipwreck, Alcyone threw herself into the sea in great sorrow and she too died. The gods were kind to them and so changed them both into kingfishers, and the scientific name 'Alcedimidae' is in remembrance of these two Greek mythological figures.

Christ's suffering has been identified with the pelican; and in medieval times, it used to be signified with piety and charity. This is due to the false medieval belief that the pelican feeds its young with its own blood by piercing its breast with its own beak.

The wren, one of the smallest of birds, is known as the king of birds. It seems, according to a legend, that a dispute arose as to who was the king of birds. When a decision had to be arrived at an assembly of all birds, it was decided that whichever bird soared the highest would be declared the king of birds. Soon the eagle was soaring high, well over all the others, and was about to proclaim himself the king of birds, when the little wren, who had all along been a stowaway riding the back of the eagle, flew a few feet higher and proclaimed itself the king of birds.

The African Honeyguide, as the word implies, guides people to where beehives are. They call from treetops as soon as they

see people. Then they fly from tree to tree, and if one follows the bird, it will lead one to the beehive. The Honey-badger, a small animal fond of honey, is a great friend of the Honeyguide, and follows the bird for honey. There is a belief among some African tribes that a Honeyguide's call must be heeded, and also while taking the honey from the hive, a part of it must be left for the bird. If one fails to do both these, the next time it may lead you astray, or to a den of lions.

There is a belief among certain Indian communities that the White-bellied Sea Eagle is an avatar of Lord Krishna and therefore it should not be harmed. It is even believed that seeing this bird itself will bring luck.

Owls being nocturnal, with eerie hoots and appearance are universally associated with demons or devils and are considered harbingers of ill luck. Their hoots are said to forewarn of bad events, their flight and sightings of them are considered ill omens.

4

How to watch birds and identify them

Bird-watching and identification is one of the most fascinating and interesting hobbies. It can be done by any and every one, individually, in pairs or in groups. There is no age limit to be a watcher of birds. From the youngest to the oldest, all can take part in this. Neither is there any necessity for any equipment, though a pair of binoculars would be an advantage.

If a person lives in the city, all he has to do is to go to the outskirts of the city where there is some form of vegetation, foliage or, preferably, where there are some fruit trees. Or, if there is a park, this is also a good place to go bird-watching. If one lives in a town, perhaps one's own backyard, where there is some good vegetation and trees, would suffice. Patches of water, ponds, lake sides, in and around the towns and cities, are also places where birds are likely to gather, and therefore good spots for bird-watching.

Though all times of the day are good for watching, the best time would be morning hours from dawn till about 8 or 9 am, and evening hours at dusk, from 5 to 6 or 7, when the sun is just going down. These are the best times, because it is at these hours that the birds are most active; in the mornings, they are fresh after the night's rest; hunger and the night's break may find new

things for them to feed on, and in the evening hours, they prepare themselves for the night.

A forest is the best and most ideal place to visit for bird-watching. The undisturbed solitude, the thick foliage, give the birds the maximum protection, and the throbbing insect life more things to feed on. While going on such bird-watching expeditions, it is best to dress in some sober colours that blend with the environment, vegetation or foliage and not bright colours. Comfortable dress with light footwear, if some trekking is necessary to go to the desired spot, is ideal.

The problem one next encounters is where to sit or wait for bird-watching. It has to be remembered that bird-watching requires, at times, hours of patient watching and, therefore, a good site is all important. It is important both from the point of view of the bird-watcher, in that some good, reasonably comfortable spot has to be found, and, at the same time, it should be a spot where there is a possibility of some birds to be watched. Large fruit-bearing trees, waterbodies, and, if the desire is to watch birds in flight, or migratory birds, high hillocks and elevated rocks would be best suited.

Sitting in an enclosed or camouflaged structure built at a good vantage point has certain advantages as well as disadvantages. Since it is an enclosed cubicle one's view is restricted and one does not have the all-round view one gets while sitting in an open space. However, the advantage in being in an enclosed cubicle is that the bird-watcher has some freedom of physical movement of body and limbs, without being seen or noted. This becomes highly advantageous if the period of bird-watching is long. Another great advantage in sitting in a cubicle is that, since the birds do not see the bird-watcher, they are likely to come within close range of him, and this naturally enables him to watch the bird more closely and in greater detail. This is indeed a tremendous advantage.

The success or failure or bird-watching depends largely on the capacity of the bird-watcher to be quiet and still. In fact, silence and stillness is the *sine qua non* for bird-watching, if one is to do it with some measure of success. Smoking is positively a taboo while watching birds.

The important observations to be made in bird-watching are the bird's appearance or looks, its cries, its behaviour and its habitat. Make notes of what has been observed. Even if a well-known bird is seen, check to see whether it is any different from what has been known of the bird. Is it alone or in the company of others of its own variety, or is it in the company of other birds? Making a sketch of the bird helps, in that one is made to observe the bird more closely for minutest details. The day and the time of the watching must be made note of.

On spotting a bird, it is best not to remove one's eyes from it, and if binoculars are available immediately, view it through them. The reason being, most birds blend themselves with the tree, the foliage and the landscape where they perch or move about, and once one's eyes are removed from the spotted bird, it may become difficult to see it again. This blending of the bird with the surroundings is in fact nature's way of protecting it from its enemies.

The first thing one quite naturally notices on spotting a bird is its size. The comparative size of the bird with a commonly known bird is to be noted. The size becomes deceptive sometimes, because of the way the bird sits or perches. Therefore, note the perch and the angle at which it is sitting. Next in the order, is to note the colour. The variations of colour on the different parts of the body should be noted carefully. In some birds, the colour variation is the distinguishing factor between the male and the female. Therefore, this is also important. Note also how the bird sits, whether it sits quietly as some birds do, or whether it constantly moves about and is fidgety.

The size, thickness, length, etc., of the bill of a bird gives the bird-watcher quite a few clues on its feeding habits, like the kind of food it eats, where it eats, etc.

The position of the eye of the bird – whether the eye is placed on a bare patch of skin, and if so, the colour of the surrounding skin, or whether, as in most birds, it is surrounded immediately by feathers – is an important feature to be noted.

It is difficult to tell the length of the wing of a bird in a sitting position. When it takes to flight, the length of the wings should be noted. Birds with long wings are high altitude fliers and shorter or smaller winged birds are known to keep only at a low level of flight. Then again, while in flight, though most birds keep their wings parallel to the ground, there are some whose wings are held high above the body while in flight. Also, the way a bird flies is interesting to watch. Though most fly with their wings flapping in a rhythmic style, there are others who, once height is attained, do quite a bit of soaring, and make use of the updrafts of the warm air. There are some who, after a few flaps of the wings, close them together when they lose height, and then again flap them, repeating the pattern. This peculiar pattern adopted by some birds is called an 'undulating' flight. The way a bird flies is therefore important to note.

Like the wings, the tail is another part of the bird which is important to note. Its length and the shape, whether round, or square at the end, is important to note.

A close scrutiny and study of the legs comes next. The length and the structure of the legs gives a clue as to whether they are ground-feeders, perchers on trees, waders, etc. The growth of feathers on the legs, whether it covers down to the toes or not, must also be noted.

The following are some of the essential parts of the anatomy of the bird in technical jargon:

Mandible	Commonly known as the beak or bill
Forehead	The portion just above the bill
Crown	The area above the forehead (i.e., the top portion of the head)
Primaries	The extreme outer end feathers of the wing
Secondaries	The part of wing feathers just after and in line with the primaries
Coverts	The rows of feathers above the primaries and secondaries.
Upper tail coverts	Above the tail feathers and below the rump
Belly	The underpart, below the breast
Tarsus	That part of the bird's leg between the thigh and the feet or toes
Rump	Area above the tail coverts and below the back

The cleaning and grooming procedure followed by birds is rather interesting to watch. The bird's bill is the implement with which it cleans itself and even helps others in cleaning themselves.

Sometimes it may be noticed that a bird gets down from the perch and sits on the ground with its wings spread. If the ground in that area is watched closely, possibilities are that this ground will contain a swarm of ants. One may wonder why a bird should sit on a pile of ants. Here, what the bird does is called 'anting'. That is, it gets rid of the ticks and lies by allowing the ants to get on it and squirt their formic acid on it. Similarly, some birds are seen to take a mouthful or billful of ants and squirt themselves with the ants to achieve the desired result of getting rid of the insects in their feathers. Just like the anting procedure described, dust bathing is also done by some birds. To observe this, one has to be sufficiently close to the bird while watching, or have binoculars.

Depending on the season, the courtship of birds is most interesting to watch. Usually among birds, the male of the species is more colourfully adorned than the female, and it is the male that initiates the courting procedure. The gesticulations, the movements of the head and wings are a treat to watch, and each species has its own technique and sequence and rituals in these courting procedures.

To watch birds is nothing short of making a study of them. Why and when do birds behave in a particular way. Does such behaviour change with the environment? Why do some behave differently from others in the same environment and differently in changed circumstances? Does such behaviour enrich the environment? What effect does it have on man? These and myriad other questions arise and are answered from the study of birds by observation. Apart from the pleasure and knowledge one derives in watching birds, one is ultimately led to admire this great creation of nature.

5

Bird migration

The Arctic Tern migrates from the Arctic to the Antarctic covering a distance of 25,000 miles in a year. The Wheatear, flying from North Canada via the Bering Straits through Russia and joining the other European Wheatears, goes to Africa, covering a distance of 20,000 miles in a year. The European Cuckoo, without the aid of its parents, migrates to Africa. And the Barheaded Goose crosses the Himalayas at a height of 29,500 feet to come to India for the winter.

Why do these birds and so many others migrate from one place to another, facing myriad hazards not only of nature but also of predators and even humans? When do they start their journeys? What triggers them off to start these long journeys? And while flying, how high, and at what speed do they fly? Do they all fly during the day only, or during nights, or during the day and night? And the most perplexing and fascinating question that arises is, how do they know in what direction they are to go, especially while covering thousands of miles of featureless seascapes and landscapes. When man moves over vast oceans and through air, he has the aid of so many scientific instruments, invented by him to aid and guide him. But, for a small bird, what guides it to its destination? Intuition and hereditary traits or the heavens and their myriad heavenly bodies? These are questions

that have been constantly agitating man's mind from time immemorial. Many experiments have been carried out by great ornithologists, scientists and others, and one might say a slight breakthrough has been made but the picture still is very hazy.

To closely study this subject of migration, we must know what exactly we mean when we say migration. Migration is not just a movement of birds from one place to another. The Cattle Egret, which was at first found only in northern Africa, southern Europe, and some parts of Asia, in the late 1930s moved to central America, northern South America, Guinea and Australia. These birds, once they moved to these new habitats, never returned to their original homes in northern Africa, etc. Where they went, they stayed for good. Here is a case of not migration but what is called colonization. Migration is a journey by a bird from its usual place of residence or habitat to another suitable place for a short stay and return to its original habitat.

Why do these birds leave their habitats? To understand the reason, their habitats have been studied. One reason that stands uppermost is weather conditions. With the setting in of the winter, and the inability of birds to withstand its rigours, they leave for warmer climates. Further, what is more important is that once the winter sets in, the bird invariably finds it well-nigh impossible to find the wherewithal for its survival. Therefore, the sine-qua-non for migrating seems to be the bird's very survival.

Many of these migrants cover distances which at times seem fantastic even by modern-day human standards. Apart from the Arctic Tern and Wheatear doing some marathon flying, there are others flying great distances. The Short-tailed Shearwater circles the Pacific Ocean, leaving southern Australia, and in an anticlockwise direction, circling the entire Pacific Ocean, touching eastern Siberia, Alaska, the west coast of America and then going back to southern Australia. Another of the shearwater family, called the Sooty Shearwater, flies from Cape Horn to Alaska. Then there is the Lesser Golden Plover which flies over the entire

length of North and South America, flying always over land, from Alaska to Argentina. Another of the marathon fliers is the Wilson's Petrel, flying from Cape Horn on a long route to the Antarctic, to Newfoundland, and then to Africa, Europe and back again. One peculiarity of the Arctic Tern's flight pattern is that it never flies over land like the Wheatear, which always covers its distance over land, but always over the Pacific and Atlantic Oceans.

It has been observed that the Bar-headed Goose flies over the Himalayan ranges at a height of 29,500 ft. Such high altitude flying is a rarity, if not an exception to most migrating birds. The purpose of migrating is to get to the destination quickly, and with as little effort as possible, perhaps, and therefore most birds keep to an average height of about 2,500 ft. It is the larger migrants like cranes, storks, geese and ducks, among others, that is, about 10% of the migrating birds that usually take to average altitudes of 10,000 ft. and above.

Though most birds, and especially the smaller ones, fly in groups and in a haphazard fashion, the larger ones like the geese and the cranes take to formation flying. They have their reasons for this. While flying in formation, the flapping of the wings of the bird immediately in front creates what are called 'air eddies' or 'slip streams', and this helps the one immediately following to fly with a little less effort. This advantage is gained by every bird in the formation except the first one, the leader. So the leadership often changes, with other birds from the group taking over the lead.

Storks are noted to use the thermal winds. And the albatross, whose wing span, from tip to tip, is 11½ feet, follows astern of ocean liners with its outspread wings, never flapping, but gliding miles and miles using the updraft of ocean waves. This migration bird is so helpless without the wind that the 13 species found both in the Northern and Southern Hemispheres are unable to meet one another because of the windless doldrums of the equator, which neither of these are able to cross.

Most, if not all, small migrating birds take to night migration. The reason being, that they can enjoy the protective cover of darkness and also recoup during the day at intermediate points with food and water. The only exception among the smaller birds which fly during the day is the Swift. Scops Owls, once known as Screech Owls, are amongst the smallest of the owls. Coots – commonly found in the lakes of Europe – wrens, buntings, thrushes are all night migrants. Geese and swans are both day and night migrants and cranes migrate only during the day. While in flight, these birds often call out to each other to keep together.

The regularity and precision, often to the day, of these birds passing over the same spot, year after year, is again something to be marvelled at. The huge European Crane, with its wing span of 6 feet, flies with such regularity that it passes the same spot at the same time of the day, year after year, while on its way to Africa. So also with the geese. The people of England take it as a sure sign of the winter setting in, because no sooner do they see them pass over, coming from the Arctic region, than winter does set in. Geese are said to leave the Arctic region at the setting of the midnight sun. However, the most astounding, in respect of its movements to such clockwise regularity, is the marathon flier, the Short-tailed Shearwater. This bird, though it circles the entire Pacific in a long sweep which takes nearly a year to complete, still makes it a point to come to South Australia to lay its eggs within 4 days of November 28, year after year. And scientists and bird-watchers have observed this to happen for well over a hundred years.

Migrating to far-off places, enduring such long flights, naturally takes its toll of these birds. To equip themselves for such long lights, they prepare themselves well in advance. The months prior to these long flights, the birds build up enough fat to endure the long journey, by sufficiently increasing their food intake. Modern day hazards like high antennae, tall buildings, lighthouses, against which they hit at night, also take their toll. Further, on these long flights it is quite natural that quite a few

casualties occur. Also, the universal law of nature 'the survival of the fittest' makes no exception in this regard. The weak, the sick, and the disabled drop off on these journeys. This also helps in keeping under control any population explosion – if it exists among these birds.

The most intriguing of all questions on migration which has constantly nagged many natural scientists is the aspect of navigation. That is, how do these birds know what direction to take on their flights? When are they to leave on their long journeys? Varied experiments have been conducted and many theories have been expounded. It was believed that the parents or the older ones guided and led the way to migration grounds, and the young ones that followed were thus initiated in this process of long flights. But the case of the European Cuckoo does not give credence to this theory. The cuckoo being a parasitic bird lays its eggs in other birds' nests and leaves for its migrating grounds. The young ones are therefore brought up by the foster parents who are not migrating birds. But still these young cuckoos, when they come of age, fly to the identical summer ground as their elders. Similar is the case with the Lesser Golden Plover, where the parents and the young ones leave at different times but still arrive in Argentina, their migrating grounds. Other young birds left back and leaving after their parents' departure make it to their migratory grounds, unaided. This leads one to conclude that a hereditary migrant trait is present.

Albatrosses found in Midway Island were taken in different directions, that is, to the east coast of America and the west coast of Europe, and released. These birds returned to Midway Island, covering distances of nearly 2500 miles at an average speed of 128 to 317 miles per day. Similarly, Manx Shearwaters were taken from Stockholm on the Welsh Coast to the eastern US coast. On releasing them, it was found these birds crossed the Atlantic covering a distance of 2700 miles, at an average speed of 244 miles per day, in about 12 ½ days. Similarly, these birds when released from Venice in Europe, found their way back to

Stockholm covering 3700 miles, via the ocean, at an average speed of 265 miles a day. Again, Leach's Petrel taken from the US coast to Britain and released, returned to the US coast within two weeks.

To pin point what exactly makes the bird take the right direction at the right time, many novel and scientific experiments have been carried out on these birds. The outcome of all these have been that many theories have been expounded but nothing seems to be conclusively proved. One theory propounded by scientists was that the earth's magnetic field had something to do in helping them in their navigation. That is, the bird flying through this magnetic field acts as a conductor and, by measuring the difference in potential between the ends of its body, it is able to calculate its position in relation to the earth. To do this, the bird has to measure differences in potential to the extent of 1 millionth of a volt, which seems to be an impossibility. But still, one experiment that was conducted was to attach small magnets to these migrants and watch their movements to see if it had in any way affected their sense of direction in flight. It was found that these magnets had absolutely no effect on these birds or their movements in flight or migrations.

Another theory was that the migrating bird was able to perceive the Coriolis' Force, and, thus, adjusting itself to it, was able to navigate itself. The Coriolis' Force says that an object in the Northern Hemisphere, moving in the direction of south to north, tends to deflect its path of progress laterally in the eastern direction because of the earth's rotation, provided the moving object moves at a constant velocity or speed. This theory of this force affecting the bird in its navigation or helping in its navigation was proved to be negative, since it was found that the bird, to get any sort of help or guidance from this force has to keep at a constant velocity or speed while on its flight, and to keep such a constant velocity and speed, its weight on these flights has to be constant up to one to two grams, and its speed up to 0.2 miles

per hour, which again seems to be an impossibility.

Some natural scientists tried to correlate the fluid in the inner ear of these birds, which perceives the sense of acceleration with this force, in that a bird was able to measure this force and thus navigate itself. But this theory was also rejected because of the Brownian Effect, in that this fluid is in constant molecular disturbance, and this masks the effect of this force.

It is a well-known fact that every living organism depends for its very survival on the sun. From the smallest microorganism to the largest living creature, most cannot exist without sunlight; that is, the sun affects almost every non-living and more so living thing either directly or indirectly. Based on this theory, experiments were carried out on these migrating birds. One such experiment was to artificially create sunlight and note the effect of it on these birds and their movements. It has been found that by directing light on the pituitary gland, which is below the brain of the bird, this gland gets activated. Such activation produces hormones, which in turn excite the ovaries, testes and thyroid glands. The metabolic rate is also increased, and the bird puts on weight by building up fat. It has been noted that these are all preconditions for migration. Thus, sunlight seems to have an effect on the migration of the birds. The weather conditions, like the temperature, rainfall, etc., also seem to have an effect on when the bird has to migrate.

Another interesting experiment was conducted on the nocturnal migrants, the Indigo Buntings of North America. These birds were exposed to a night sky of autumn in a planetarium, when it was actually only spring outside. It was found that these birds tended to fly north instead of south, as they should, had they been out in the open, since during autumn they go south to places like Bermuda. Then again, artificially created daylight in the planetarium was shortened, progressively quickly, to note the effect; and it was found they responded to it in that they tended to fly south as they normally should do, though it was

only spring outside when they should be heading north. Then the night was completely blacked out with no stars, and it was found the birds were confused and tended to fly in all directions. However, when the Polaris star was shown, on the blacked-out sky they responded and took to their normal flight pattern.

As mentioned earlier, the Short-tailed Shearwater, with clock-like precision, lays its eggs at the appointed time, though, during the year it passes through varied climate and weather conditions while circling the Pacific. Similarly, the Sooty Shearwater has a definite cycle of 265 days for its egg-laying, though this bird, like so many of those in the tropics, does not have such varied and intense weather and atmospheric change as in the cold zones. Further, migrant birds kept in captivity still developed their gonads normally in time like the free migrants.

Some nocturnal migrants which have been kept without ever being exposed to the skies during their lifetime, when released were found to follow their usual direction course. However, when such birds were released in cloudy weather, they were confused until they were able to see some opening in the cloudy sky. The pigeon also seems to get lost when released into a cloudy sky and is able to get its bearings only when it is able to see some part of the sky.

Yet another experiment was conducted enclosing some nocturnal migrant in a planetarium with a particular night sky and watching it movements. Subsequently, this same sky was rotated by 180^0, yet it was found that these birds followed the changed direction.

One discovery that baffles the scientists is a small structure in the eye of the bird which is called the pectan. On the face of it, it seems such a structure on the eye would naturally be a hindrance rather than a help to the sight of the bird. What use it is put to or if it is something which is there exclusively to help the bird on its navigation of the skies, or is there for any other purpose is yet to be determined.

All these experiments and findings seem to point out that though the weather, atmosphere, stars, the Polaris star, and the sun do have an influence, there also seems to be some other factor, perhaps in the bird itself, which guides it or triggers it off on its long journey. This mechanism, many scientists seem to conclude, could be of many internal functions working together to produce a result, that starts the bird on its migration, and perhaps also helps in its navigation. It is wholly and exclusively an internal mechanism. This mechanism has been termed as the 'biological clock' in the bird. Precisely how this functions is yet to be proved. However, there seems to be enough evidence that the biological clock does play its part along with the other conditions in the navigation and migration of birds.

Though it has been said that birds migrate to avoid the rigours of winter and to find their wherewithal for survival in other far-off places, there seems to be one exception to this; just as one can always find an exception to any rule or law or custom. It was the American Indians who first discovered that there was one bird which hid itself in the rock crevices throughout the winter, hibernating there, without migrating like others. At first this discovery was pooh-poohed by many, if not by all scientists, thinking that it was impossible for any bird to spend its entire winter in such a fashion. But in the 1930s the natural scientists found this bird, the Colorado Whippoorwill, hibernating just as the American Indians had said. This Whippoorwill spends the entire winter in the snow-covered crevices, when its body temperature drops from 102 ^{0}F to 65 ^{0}F and the metabolic rate also drops, thus enabling the bird to survive the cold winter.

These experiments and observations seem to indicate that celestial objects are a positive help and guide to these migrants in their navigation, that is, these objects act as a reference point, and the biological clock that is in the bird only tells the bird what direction it is to take from this reference point, and at what season of the year.

6

Binoculars for bird-watching

1. Binoculars are essentially optical instruments which magnify the object viewed, and bring the object closer to the viewer as well. They are therefore not only a prerequisite for bird-watching, but also a positive aid and a boon as well.

2. Watching birds even with the naked eye gives much pleasure to a bird-watcher. But in viewing them through the binoculars their beauty is so much more enhanced. They are not only seen enlarged, but also in greater detail and clarity.

3. Since the last World War, several technical advances have brought about improvements in the optical qualities of binoculars. The coating of the lenses is but one. The result of all these is an instrument of great optical excellence that has given birth to a new fraternity of men and women, the bird-watchers.

4. Binoculars are classified into two categories. The older type is called the Galilean and the modern type, the Prismatic. The Galilean type is as obsolete today as a muzzle-loading gum.

5. Prism binoculars consist of the objective lens (A), the prism (B), the field lens (C), and the ocular lens (D) Holding the binoculars in a ready-to-view position, the objective lens is the one nearest to the object being viewed, followed by the prism,

then the field lens, and then the ocular lens, or the eyepiece, which is nearest to the eye.

6. In the better quality binoculars, the prisms and the lenses are coated with magnesium fluoride on the air-to-glass surfaces, which can be seen easily by the tint of purple or light straw that these lenses have. The purpose of the coating is twofold. The loss of light in an uncoated lens or prism is about 5% for each air-to-glass surface. In wide-angle or large binoculars, if they happen to have, say a total of 5 air-to-glass surfaces, then the loss of light becomes (5 x 5) – 5 or 25%. So, coating firstly prevents loss of light internally, secondly, it gives a harder surface to the lenses and prisms, and thus these are less liable to scratches, etc.

7. Prism binoculars are divided into two types. One is called the Roof Prism type and the other the Porro Prism type. The Roof Prism type is a new innovation, lighter and handier. The older Porro Prism type is bulkier and heavier. As the objective lenses of these are set wider apart than in the Roof Prism type, the stereoscopic effect is more in the Porro Prism type. The object is seen more rounded or in greater relief.

8. Binoculars come in many different sizes with regard to the power, magnification, etc. Markings such as 6 x 30, 7 x 35, 10 x 40, etc., are printed on the instrument. These are internationally recognized standard notations, where each set of numbers denote magnification and the diameter of the objective lens respectively. This objective lens diameter is also sometimes known as the 'effective diameter'.

9. The light-gathering power of the binoculars is determined by the light gathered by the objective lens and internally transmitted to the eye. The larger the diameter of the objective lens, the larger the light-gathering power. A measure of this light-gathering power is the diameter of the emerging beam of light out of the eyepiece. This emerging beam of light can be seen if the binoculars are held at arms length against the light with the eyepiece towards the viewer, when it is noticed that two round

luminous spots appear in these eyepieces. So the light-gathering power is proportionate to the diameter of these spots. They are also called the 'exit pupil diameter'. The wider this beam, the brighter the object viewed. But the diameter of the pupil of the eye is limited to about to 4 mm in daytime. Therefore, it is unable to catch the beam wider than 4 mm. At night, the pupil of the eye gets extended to about seven mm and is able to receive the wider beam of the large objective lens. Therefore, for daytime viewing, a limited light-gathering power will do. But if the viewer wants to observe during dawn or dusk then he has to opt for a larger objective lens.

10. As has already been noted, in order to increase the exit pupil diameter the objective lens diameter must be increased. However, if this is done, the bulkiness of the instrument increases. Men at sea are known to use binoculars with large objective lenses. There are two reasons for this. One is to ensure a good view in dull light and partial darkness and the other to make it easy to view an object from a rocking vessel when the view is constantly shifting or shaking. In a rocking boat, it becomes difficult to catch the rays of light from the object viewed if the exit pupil diameter is small. But if the exit pupil diameter is large, despite the unsteady hand of the viewer, the eye is able to catch at least a portion of the wider emerging beam. The exit pupil diameter may be assessed by a process of dividing the effective diameter by its magnification.

11. There is one other aspect that needs to be noted, and that is the field of view. The field of view is actually the area of the picture one sees while viewing through binoculars. This is expressed as, say, 150 yards at 1000 yards, or in angular measurement like 8 – 30 mts., which means the diameter of the circle viewed is 150 yards at 1000 yards or the angular view is 8 degrees in 9 mts. The wider the field of view, the more the viewer is able to take in, while using the binoculars. It must, however, be noted that as magnification is increased, the field of view is decreased.

12. The ideal time for bird-watching is during dawn and dusk, and therefore, to the bird-watcher, light is at a premium. For such contingencies, the binoculars with large objective lens with which as much light as is available can be gathered, must be preferred. The exit pupil diameter will also have to be large, without sacrificing on the magnification. If, however, magnification could be sacrificed by reducing the objective lens diameter, one can reduce the weight and bulk of the instrument as well, without decreasing the exit pupil diameter. Magnification is also important because, while viewing small objects, or birds, at a distance, the little details would become necessary to be noted for proper identification and study. Regarding the field of view, this need not be large, unlike for example watching a football game, where the passer and the receiver are to be followed at the same time. Here the bird-watcher usually views a bird or pair of birds or, perhaps, a small flock at the very most.

13. While bird-watching, apart from the binoculars, other requirements like a camera, movie camera, tripod, water, refreshments are also likely to be carried. Therefore, the binoculars should not be too heavy or bulky, but light, small and handy. Hence, the selection of one depends on the need and the use it is to be put to. The correct balancing of these factors, namely, magnification, effective diameter and the exit pupil diameter is of prime importance. For bird-watching, a magnification of eight to ten, with an objective diameter of about 35 to 40 would be sufficient.

14. A viewer with spectacles using the binoculars does have a certain disadvantage. While viewing through spectacles, the eye of the viewer is too far from the binocular lens. This causes loss of field of view. To rectify this, shallow eye cups are necessary. Some modern binoculars come with attachable special eye cups for spectacle wearers.

15. Viewing through binoculars needs a steady and firm hand to get the maximum result. Shaking or vibration causes a blur.

Therefore, when viewing, hold the binoculars firmly with both hands and use the index finger and thumb for adjusting and focusing. A preferable position is to sit with legs cocked up, which helps in resting one's elbows on the knees to steady the instrument. This position is also less tiring, especially if longtime use of the binoculars is contemplated or becomes necessary. Alternatively, if the object is to be viewed standing, it is advisable to anchor the arm holding the instrument to a nearby tree or some firm object. A binocular tripod or even a camera tripod with suitable attachments, whereby the binoculars could be made to sit firmly on it, would be ideal.

16. A strap attached to the binoculars and hung round the neck should be the ideal way of carrying it on field trips. They should be hung just chest high, so that they do not dangle too low or hit the ground or other objects while bending, etc. Carrying them this way helps in keeping the hands free; as they are at chest level, they become easily and quickly accessible. While on trips for bird-watching, binoculars should not be exposed to rain. In inclement weather, put them inside the shirt to avoid getting them wet. Never wipe the lens with ordinary cloth. Such constant wiping with ordinary cloth is liable to leave small scratches even on a coated lens. Use a chamois leather piece for cleaning, and have it handy always, keeping it in a separate pocket while not in use.

17. It should always be remembered that binoculars are delicate instruments, like a camera. Prism binoculars are undoubtedly delicate and complicated instruments. Many glasses are corrected for colour and diffusion of light. The prisms are then coated and lenses are ground, corrected and coated. These then are aligned, set and fastened together. Rough use and constant knocking about is liable to disturb the precision alignments of the lenses and the prisms, thus causing aberration of vision. Therefore, if they are to be a life-long companion, which they can be made to be, they should be handled gently and carefully.

7

Birds and the ecological balance of Nature

An organism and the environment are two essential and integral parts of the ecology of the universe. This being so, to the extent these are allowed their natural growth, undisturbed, there is a balance of ecology. How this balance is held, and why it is essential to hold this balance, necessarily involves an incessant knowledge of both organism and the environment, and the study of these is as fascinating as it is interesting.

All organisms have life. They range from the highest, the most complex of all living organism, man, to the lowest, the simplest, and the minutest, the cell. Between these two are all other living organisms, like animals, reptiles, rodents, insects, worms, fishes, trees, plants and birds. The life cycle of all these, is birth, growth and death.

Without life, an organism is nonexistent. Life for an organism becomes possible only if there is an environment conducive to its birth and growth. The environment is a set of conditions and influences that make the surroundings the place that it is. This gives identity to a place. These identities, conditions, and influences are bestowed by nature, as well as by organisms by their own actions and by their interaction with all of them. These

conditions and influences are there to make it conducive for an organism to be born, to live, and to perform what it is meant to perform.

An organism is born and grows in an environment that is most congenial to its birth and growth. An organism reaches its fulfilment only if the environment in which it lives helps its healthy growth. The fulfilment of an organism is the usefulness of it to itself, and other organisms and environments. As it spends its life cycle, it grows, it blooms, it fulfills its objects of life, and its self-aggrandizement, while in this process of life, also fulfils the secondary object, that of being useful to other organisms and the environment.

Birds are just one of the many thousands of organisms that live in this universe. For a week or two after birth most birds are helpless. The parents feed them first, by regurgitating food, and then by bringing small morsels of food like worms, tiny insects, small fruits, etc. When in this helpless state, birds become easy prey for predators. Once able to fly, they start to live on their own. The immediate environment is their habitat. This environment is kept under check as they consume the insects, worms etc. Some hop from flower to flower, hunting for nectar, and so on. As some species grow, they devour other smaller birds. Carrion, trash and rubbish are consumed by yet other species. Its faeces are dropped everywhere.

What would be the consequence if birds are destroyed and all birds become extinct? The insects, worms, etc., would increase indiscriminately, because would be there no birds to devour and destroy them, and an influx of pests would result. Such indiscriminate growth of these pests would destroy the soil and crops everywhere. Even big trees would not be spared. The loss of the trees and plants would kill other living organisms that live on them. The omnivorous living beings which depend on the trees and shrubs and plants for their food would also perish.

The survival of the fittest being the maxim of all organisms, when a bird attacks and kills to devour, it kills the weakest, the disabled, the unhealthy. All those who are unable to escape, fall victim. This ensures that the fittest among its prey only can survive and breed. The diseased, the ill, the crippled are automatically eliminated by falling prey, and thus the breed is kept fit and healthy. While it collects its required nectar, it pollinates the flower by moving from flower to flower. Had it not collected the carrion, the dirt and the rubbish, pollution would be the result. The faeces containing seeds of consumed fruits, falling to the ground grow into plants and fruit-bearing trees again. It also becomes manure to the already existing plants and trees.

A tree is a storehouse of insects and other small organisms. If the birds are not there to check the growth of these insects and organisms, the tree is harmed and destroyed by these hordes. When a tree is lost, the soil is washed away, since there are no roots to hold it, and as years go by erosion is the result. The atmosphere with no trees becomes arid, with more loss of moisture. A tree-denuded landscape has less or no rainfall than one with plenty of trees. When a large number of trees are lost, the weather and the atmospheric conditions in and around that area are affected. The air becomes polluted, since there is nothing to consume the nitrogen content of this air and replenish the atmosphere with oxygen. The loss of a tree is the loss of the leaves that fall from it and around it. These being a perennial source of rich fertilizer are again lost. And the loss of trees is loss of mineral wealth like coal, etc., which form after millions of years, through the interaction of the soil and fallen leaves.

There are instances galore where it was mistakenly thought that certain varieties of birds were the cause of destruction of crops, etc., and therefore, mass killing of these birds were resorted to, to protect the crops. Before long, after such annihilation of these birds, it was found that other kinds of pests in the soil and the environment increased and multiplied indiscriminately,

causing more damage and havoc to these very crops. It was not realized that these birds were doing more good than harm to the environment and the crops by destroying insects and other pests.

It is the totality of all continuous actions and interactions of all organisms and environment that make the ecological balance of nature. Therefore, all organisms and environment are interlinked and each depends on and affects the others. Destruction of any of these even partially, is breaking or weakening one link in the ecological chain. Such action would invariably bring about repercussions, which perhaps may go unnoticed for some time, but eventually, as time passes, would become slowly evident, until it becomes an unprecedented disaster. The bird is in no small measure one link in such an ecological chain. Destroy the bird and you destroy this balance of nature. Therefore, the preservation and protection of birds are a sine-qua-non, if the ecological balance of nature is to be maintained. And, unless this ecological balance of nature is allowed to be maintained without man interfering, disturbing and destroying it, the future of mankind would be bleak indeed.

PEOPLE FOR ANIMALS, CHENNAI

Dr. Shiranee with blind and old 'Misty' rescued from a laboratory.

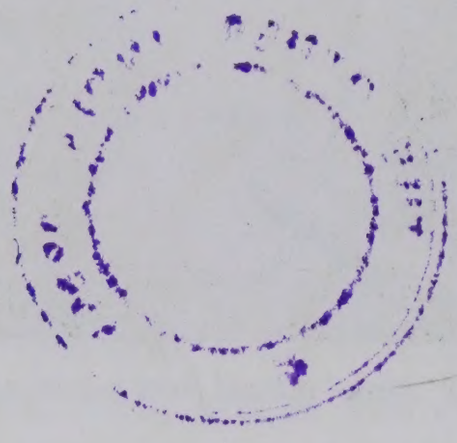
'People for Animals' (PfA) is the largest animal welfare movement in India. Started in 1994 by Maneka Gandhi – the world-renowned animal rights activist and environmentalist – it has today over 150 chapters established across the country.

The Chennai chapter of PfA is run by Dr Shiranee Pereira, a co-founder of the organisation. Since its inception in 1995, every year has been a milestone in the cause of voiceless animals. From stopping the brutal electrocution of 20,000 stray dogs to rescuing chimpanzees, lions and tigers from circuses, the rehabilitation of abused laboratory animals, midnight rescues of cattle and sheep from slaughter, or illegal live animal trafficking, besides spreading the message of alternatives to the use of animals in education – PfA has worked tirelessly to alleviate the suffering of thousands of animals in every arena in which these creatures are used or abused.

Today PfA in Chennai manages three institutions in which over a thousand animals including horses, mules, monkeys, pigs, cattle, sheep, dogs, cats and birds – all rescued from a cruel death or human violence, slaughter or from laboratories – find a home and are taken care of until their natural death.

Besides this activity, PfA works proactively with several state departments, the police, schools and colleges on humane education projects, enforcement of animal welfare laws and other animal welfare issues.

To know more about PfA Chennai, visit www.pfachennai.org



THE OTHER INDIA PRESS

About Backyard Birds

'Birds are symbols of freedom,' writes Dr. Jane Goodall, DBE – in an intimate foreword written specially for this book. 'They are able to fly up from the ground, up towards the sky. We all, at some point, want to fly, to feel the wind rushing past, to soar effortlessly up and away. Birds help many people to reconnect with the natural world for, except in the most polluted places where almost all of nature has been destroyed, birds share the brightness of their lives with the human inhabitants of towns and cities. Often they bring not only colour but also the glory of their songs.'

Pereira's lucidly written book warms the reader to common birds found often in our backyards. The Magpie Robin, the Paradise Flycatcher, the parakeet, the oriole are all gifts of nature, making this world of ours more beautiful and pleasant for their very existence.

For those who wish to develop their bird-watching hobby into a passion, Pereira includes useful tips on bird folklore and other fascinating titbits from the world of birds.

Backyard Birds of South India will stimulate readers to welcome these colourful visitors to their gardens and homes with a conscious eye and to look after their well-being with greater eagerness, affection and love.

Other India Press
ISBN No: 81-85569-71-1